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## **QUARTERLY REPORT #4**

### **HELPING ADDRESS RURAL VULNERABILITIES AND ECOSYSTEM STABILITY (HARVEST) PROGRAM**



**October-December 2011**

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*Cover photo by Bunnath Khun, Fintrac Inc.*

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The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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## EXECUTIVE SUMMARY

This is the fourth quarterly report issued by USAID-HARVEST, a five-year food security program focused on increasing incomes for 70,000 rural Cambodian households as part of the US government's Feed the Future initiative. This quarter was characterized by the launch of activities in two new provinces, Siem Reap and Kampong Thom; a major expansion of technical assistance and training in Battambang and Pursat; and the commencement of major forestry and aquaculture initiatives. In addition, the region experienced the most severe floods in 50 years, destroying hundreds of thousands of hectares of rice fields, flooding entire villages, and displacing thousands of rural people. While the floods delayed some field-related activities in Pursat, Siem Reap, and Kampong Thom, USAID-HARVEST farmers were less vulnerable because of the good agricultural practices that have been adopted, and were still able to increase yields and incomes. The program is working to assist affected target communities to overcome the extra challenges posed by the floods.

Highlights include:

### Overall

- This quarter, 2,728 farmers and other clients (46 percent female) received training and technical assistance across all program areas.
- A total of 13,636 participants have received training to date. This includes 8,492 participants receiving training in basic agricultural practices such as land preparation, proper plant densities, integrated weed and pest control, and improved fertilizer application.

### Agribusiness Value Chains

- Two hundred rice clients (early demonstrators) earned average profits of \$790 per hectare this quarter, nearly triple the national average, and improved yields to 3.6 tons per hectare, approximately 24 percent above the national average.
- The program's initial 150 home garden clients (also early demonstrators) generated an average of \$100 in profit from surplus produce sales (despite heavy rains) – an enormous sum in rural Cambodia where many people live on less than \$2 per day.
- Launched horticulture production activities with 175 farmers, including introduction of seedling nurseries, integrated pest management, and fertilizer application.
- Developed and distributed seven technical bulletins – covering topics such as basic farming practices, fertilization of corn, and safe use of pesticides – to help farmers improve rice and vegetable production.

### Aquaculture and Fisheries

- Commenced a new management program with six hatcheries to create a consistent source of fingerlings to address seasonal scarcity.
- Held nine conservation field days at community fisheries in Pursat and Battambang, attracting more than 1,000 participants.
- Introduced eight new aquaculture techniques to help clients increase fish productivity and produced and distributed seven technical bulletins to improve pond management practices.

- Completed the *Inland Fish Farmers' Inputs and Services Suppliers Guide* to assist fish farmers in evaluating input suppliers and prices when buying necessary equipment and other inputs.

### **Natural Resource Management (NRM), Biodiversity and Climate Change**

- Established four wood lots, five tree nurseries, and two agroforestry areas, targeting 3,571 households in Battambang and Pursat.
- Assisted seven community forestry groups in applying to the Forestry Administration for formal recognition; five of these groups (representing 819 households) have received formal designations, which include 15-year local forest leases.

### **Social Inclusion, Business Development Services and Capacity Development**

- Strengthened 59 agriculture and aquaculture input suppliers through a number of interventions, including: a three part training on the safe use of farm chemicals; the launch of product demonstrations; a new rental program for rice drum seeders; and links for 28 village-level input suppliers with dealers operating at provincial and national levels to expand product availability.
- Improved the capacity of nine local NGO partners via trainings in both technical areas (such as low-input fish pond systems, and production systems for rice, corn, and vegetables), as well as management areas (such as financial controls and grant management systems).
- Organized 17 individuals from government, university and research institutions to attend short-term training courses in Vietnam, the Philippines, China, Nepal, and Indonesia.
- Launched a nutrition initiative to improve eating habits of rural families through hands-on, participatory outreach methods and messaging.

### **Policy and Enabling Environment**

- Provided training to twelve rice millers on the requirements for bank loans, resulting in three millers receiving loans ranging from \$10,000 to \$25,000 and four millers applying for loans ranging from \$150,000 to \$350,000.
- Trained seventeen rice millers on better standards and procedures for rice processing and selling, including trade issues and negotiation of terms with exporters.
- Installed billboards in 31 villages to display comparative information about different credit providers to help farmers make better informed decisions.
- Completed an analysis of six wholesale markets – covering fruits, vegetables, fish, and grain – to determine market demand and opportunities for import substitution.
- Initiated rehabilitation design work on two irrigation canals that will enable 900 farmers to plant up to three crops per year.



# 1. INTRODUCTION

## 1.1 PROGRAM DESCRIPTION

USAID-HARVEST is a five-year food security initiative supported by the American people through the United States Agency for International Development (USAID). This Feed the Future program aims to increase incomes and improve food security for 70,000 rural Cambodian households. The USAID-HARVEST approach develops agricultural solutions to address poor productivity, postharvest losses, food safety issues, lack of market access, environmental degradation, and the effects of climate change on food-vulnerable populations.

## 1.2 GOALS AND OBJECTIVES

The overarching goals of USAID-HARVEST are to improve food security; strengthen natural resource management and resilience to climate change; and increase the capacity of the public and private sectors and civil society to support agricultural competitiveness. Specific objectives include:

- Increase incomes for 70,000 rural households;
- Accrue economic benefits for 140,000 people;
- Develop income-generating activities for 7,000 “extreme poor” households;
- Diversify cropping systems for 31,500 households; and
- Generate \$28 million in incremental new agricultural sales.

## 1.3 GEOGRAPHIC FOCUS

USAID/Cambodia’s Feed the Future strategy targets four provinces around the Tonle Sap Lake: Battambang, Pursat, Siem Reap, and Kampong Thom. During the reporting period, USAID-HARVEST ramped up activities in villages throughout Battambang and Pursat provinces, while also expanding to the eastern side of the Tonle Sap (Siem Reap and Kampong Thom). The program is in the process of selecting communes, villages, clients, and partner NGOs in these two provinces.

By the end of December 2011, USAID-HARVEST was working with a total of 2,728 clients across all areas of the program: 1,836 agriculture clients, 147 aquaculture and fishery clients, 674 forestry clients, 59 input supply clients, and 12 rice miller clients.

Geographically, the program is working in 98 villages: 35 in Battambang, 33 in Pursat, 21 in Siem Reap, and 9 in Kampong Thom. The goal for the next quarter is to reach 130 villages across the four provinces.

In selecting target communities, USAID-HARVEST uses data collected by the Cambodian Ministry of Planning, which is divided into two categories: ID Poor 1 (or P1, extremely poor) and ID Poor 2 (or P2, poor). Factors that determine whether a household is P1 or P2 include:

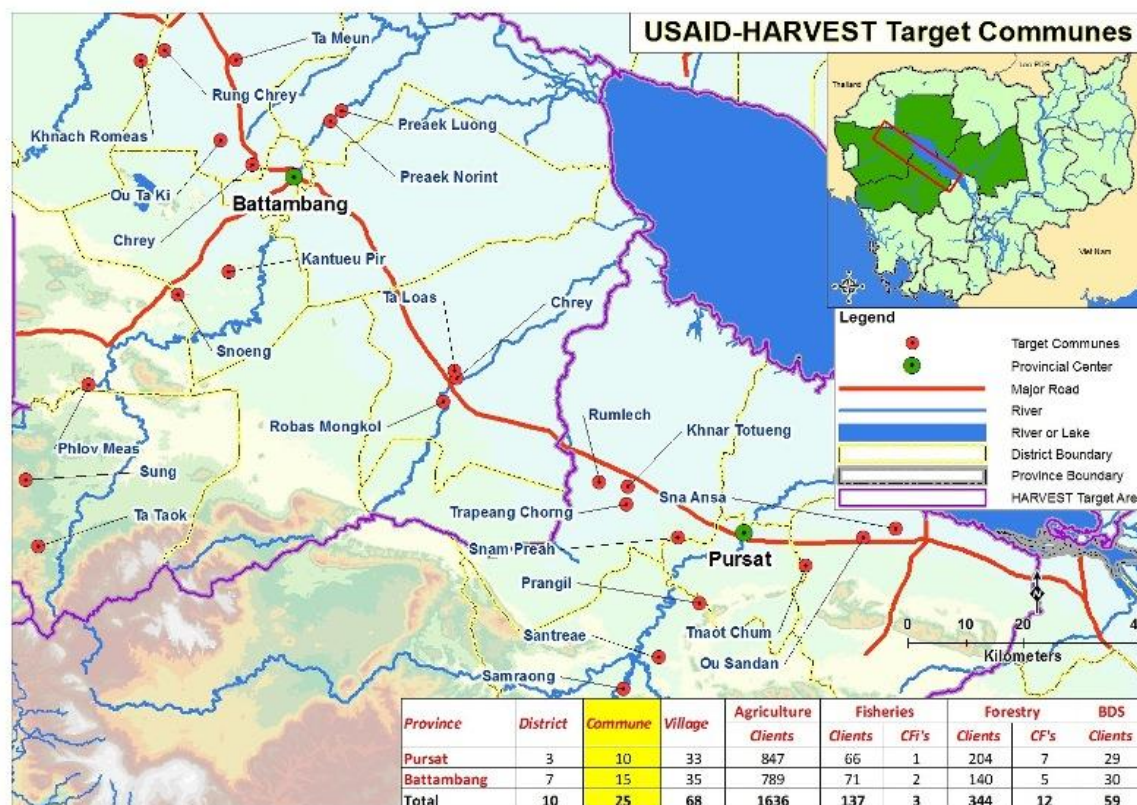
1. General condition, size, and material of the house;
2. Main source of income for the household;
3. Amount of livestock owned individually or collectively;
4. Number of family members in the household, distinguished by gender and age; and
5. Number of household members who cannot produce income due to age, health, or other factors.

Using this information, USAID-HARVEST identifies communes and villages with the greatest potential to benefit from program activities. Criteria used to select target villages across program components include:

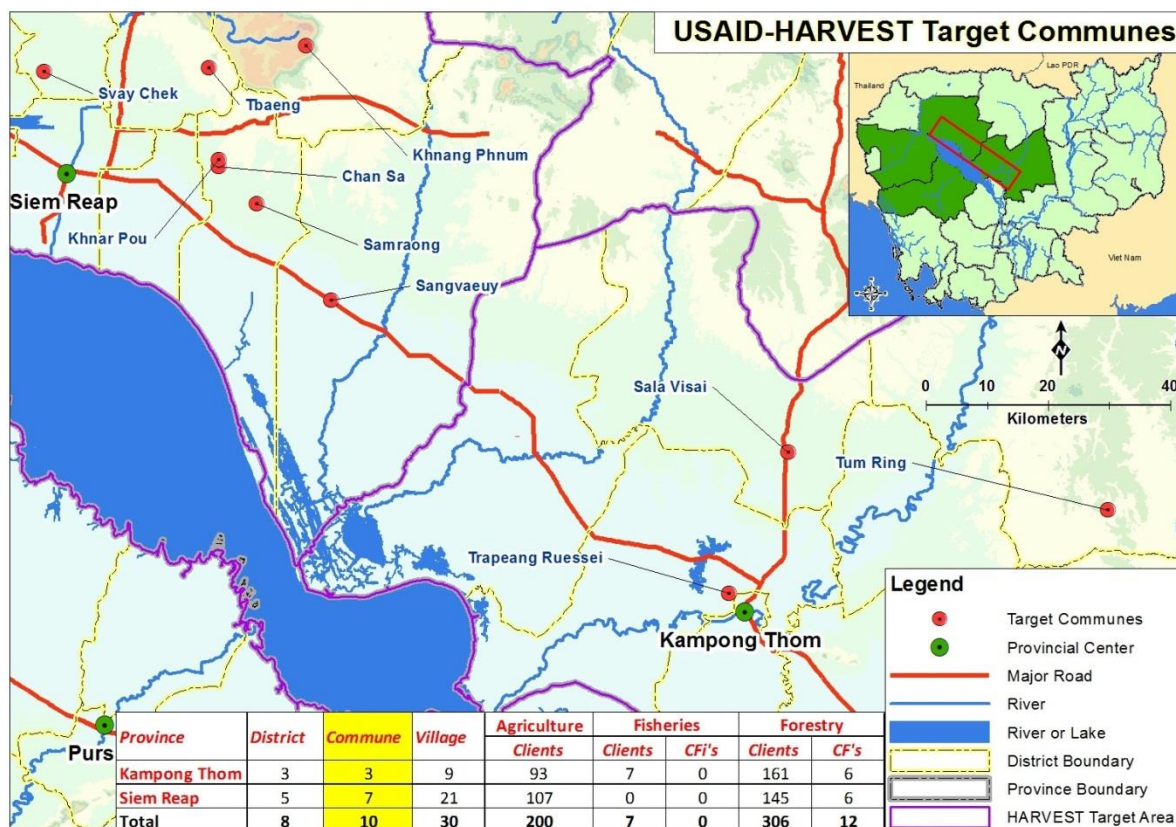
1. Number of demographic groups – especially women, young people, or other under-represented groups – interested in working with USAID-HARVEST;
2. Location and proximity to population centers, in particular their ability to impact a high number of beneficiaries;
3. The presence of partner NGOs and their experience in the region; and
4. The presence, either current or planned, of other USAID-HARVEST program components.

Figures 1 and 2 show the geographic dispersal of USAID-HARVEST target communes.

**Figure 1: USAID-HARVEST Target Communes in Battambang and Pursat**





**Figure 2: USAID-HARVEST Target Communes in Siem Reap and Kampong Thom**

#### 1.4 STAKEHOLDER CONSULTATIONS

During the reporting period, USAID-HARVEST continued to consult with numerous Cambodian government agencies, donors, local and international organizations, educational institutions, and private sector firms. In addition, the program formed relationships with numerous local-level government officials and farmer groups. Table 3 shows the range of groups with whom the program consulted during the reporting period.

As part of this process, the program continued to strengthen existing relationships with key counterparts in the Cambodian Ministry of Agriculture, Forestry and Fisheries, Ministry of Environment, and Ministry of Water Resources, in addition to other ministries such as Health, Education, Women's Affairs, and Labor and Vocational Training. The program also established working protocols with provincial governments in the new provinces of Siem Reap and Kampong Thom.

As part of its efforts to build the capacity of young Cambodians working in agriculture and conservation, USAID-HARVEST signed several Memoranda of Understanding with relevant educational institutions to provide scholarships for master's degree candidates. These institutions include the National Institute of Public Health, the Royal University of Phnom Penh, the Royal University of Agriculture, and other universities from the US and the Association of Southeast Asian Nations (ASEAN). In addition, community partners were identified to assist in the implementation of natural resource management, biodiversity, and climate change activities. USAID-HARVEST also continued working with the Fisheries Administration to ensure that its aquaculture and fishery activities are in alignment with the government's strategy.

**Table 3: USAID-HARVEST Counterpart and Stakeholder Consultations**

Government	Donor Organizations	NGOs	Private Sector & Other
Ministry of Interior (MoI)	World Bank (WB)	International Development Enterprises (IDE)	Devenco
Ministry of Industry, Mines and Energy (MIME)	Asian Development Bank (ADB)	Partners for Development (PFD)	Federation of Rice Millers Association
Ministry of Women's Affairs (MoWA)	Food and Agriculture Organization (FAO)	World Fish Center	Royal University of Agriculture (RUA)
Provincial Department of Health (PdoH)/Battambang	Canadian International Development Agency (CIDA)	Helen Keller International (HKI)	University of Battambang
Provincial Department of Women's Affairs (PdoWA)/Battambang	The Asia Foundation (TAF)	Youth Enterprise Association of Cambodia (YEAC)	Prek Leap School of Agriculture
Provincial Department of Labor and Vocational Training (PDoLVT)/Battambang	International Center for Research on Women (ICRW)	Khmer Youth and Social Development (KYSD)	Battambang Institute of Technology
Provincial Department of Agriculture (PdoA)/Battambang	Netherlands Development Organization (SNV)	Khmer Youth Association (KYA)	17Triggers
Provincial Department of Education, Youth and Sport (PDoEYS)/ Battambang	Voluntary Service Overseas (VSO)	Conservation International (CI)	Cambodian Agribusiness Development Facility (CADF)
Provincial Department of Agriculture (PdoA)/Pursat	Canadian Centre for International Studies and Cooperation (CECI)	Reproductive Health Association of Cambodia (RHAC)	Horticulture Collaborative Research Support Program (Hort-CRSP)
Provincial Department of Women's Affairs (PdoWA)/Pursat	World Health Organization (WHO)	Reproductive and Child Health Alliance (RACHA)	Cambodia Agricultural Value Chain Program (CAVAC)

## 2. PROGRAM COMPONENTS

### 2.1 AGRIBUSINESS VALUE CHAINS

USAID-HARVEST's work in this area focuses on introducing high-value crops and transferring improved technology and growing techniques to increase family incomes and food security. Over the life of the program, USAID-HARVEST is implementing three primary crop programs in the agriculture sector: establishing 6,000 crop-diversified home gardens, planting 21,000 hectares of certified aromatic rice varieties with 4,200 clients, and developing 400 hectares of sustainable commercial horticulture crops. USAID-HARVEST is promoting 40 agricultural crops with demonstration farmer clients. To date, program technical personnel have made 5,378 farm extension visits, with 8,492 participants receiving agricultural training.

- **Rice farmers increase profits and yields.** Using USAID-HARVEST techniques, close to 200 rice farmers made average profits of \$790 per hectare for the November to December harvest period, almost three times the national average. These farmers generated average yields of 3.6 tons of rice per hectare,

24 percent above the national average of 2.9 tons per hectare. The higher profits and yields came as a result of:

1. Using the high-quality Rumduol seed, a variety that fetches the highest market prices, though is relatively low in productivity compared to other varieties;
2. Improving fertilization through the use of slow-release fertilizer in pellet form (briquettes) applied at the time of planting, which provides enough nutrients for the entire growth cycle;
3. Introducing higher-quality nurseries, which reduce the amount of seed needed for planting from an average of 100 kilograms per hectare to 30 kilograms per hectare, helping farmers save approximately \$50 per hectare on the cost of seed; and
4. Utilizing a rice spacing system during planting that improves uniformity and reduces competition among plants, leading to greater yields.

■ **Home garden clients increase incomes.** As part of the Food Security and Nutrition initiative, the program is currently working with 1,391 home garden clients in 66 villages to help them eat more nutritiously while increasing incomes by selling production surplus. USAID-HARVEST is introducing the following techniques to help clients increase their yields and mitigate climatic risks:

1. Selecting crops that can withstand heavy rainfall;
2. Planting disease-resistant hybrid seeds;
3. Using raised beds with plastic mulch, which protect crops from washing out;
4. Improving drainage systems;
5. Using trellising nets to keep plants off the ground; and
6. Implementing integrated pest management practices

To date, the program has helped 150 home garden clients generate average profits of \$100 from surplus produce sales, an enormous sum in rural Cambodia, where most people live on \$2 or less per day. These clients were able to generate favorable profits despite heavy rains thanks to their training in simple mitigating measures.



*Photo by Fintrac*

**Home gardens are helping families eat more nutritious meals and earn extra income through the sale of surplus production.**

■ **Improving horticultural production techniques.** The program began work with 175 horticulture clients to improve yields and profits. Program techniques introduced thus far include:

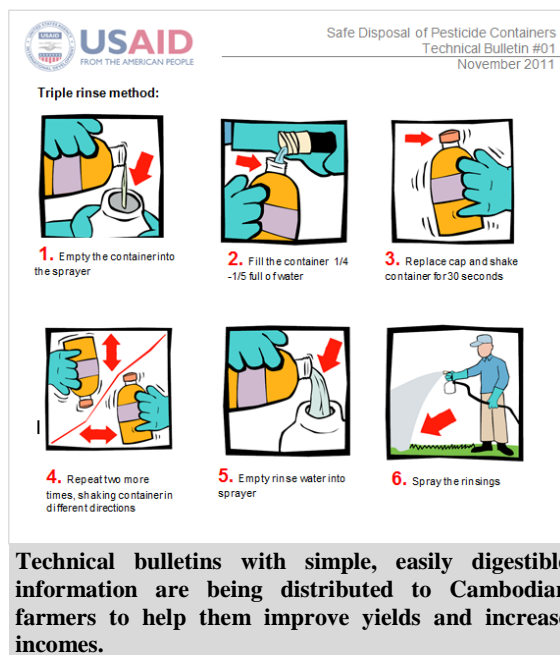
1. Drip irrigation
2. Seedling nursery production
3. Integrated pest management
4. Introduction of fertilizers
5. Improved postharvest handling

Due to flooding and waterlogged soils, activities began later than programmed, and farmers have not yet begun harvesting. Most clients are either preparing their land or are in various stages of crop



development. To date, 63 of these clients have planted new varieties of crops, including cucumbers, yardlong beans, Chinese radish, and sweet corn.

- **Expanding outreach through local partners.** In order to expand outreach, USAID-HARVEST incorporated 29 field technicians from seven NGO partners to provide direct technical assistance to home garden clients. Currently, each NGO technician works with approximately 100 clients. In the coming quarter, these technicians will begin working with additional rice and horticulture clients.
- **Technical bulletin development and distribution.** Seven technical bulletins on a variety of topics related to rice and vegetable farming were developed for clients. These bulletins, which are produced in both English and Khmer, are tailored to the literacy level of the farmers, using lots of photos and graphics. Program technicians are distributing these directly to farmers during training sessions and also make them available at input supply stores and on the USAID-HARVEST website.



## 2.2 AQUACULTURE AND FISHERIES

Aquaculture and fishery activities focus on introducing commercially viable fish species to low-input household ponds, as well as other techniques to improve incomes and food security at the household level. USAID-HARVEST also works with fish farmers who have or want to start ponds for commercial sale. The program has selected seven species of fish, in addition to eels and prawns, and has identified six suitable hatcheries to provide technical assistance in this area. USAID-HARVEST is also working to improve the management of community fishery refuge ponds, where wild fish survive during the dry season before entering flooded rice fields during the rainy season. In cases where ponds are not prone to flooding, fish are then raised and harvested for distribution among community members.

- **Aquaculture clients increase yields.** Improved aquaculture techniques have helped 286 fishery clients increase productivity to date. Trainings focus heavily on pond management, including water quality, carrying capacity, and feed management. A variety of inputs and equipment is also provided to fish farmers – including fingerlings, lime for pond treatment, and feed – to help start new, improved fish-raising cycles.
- **Worked with hatcheries to improve fingerling supply.** In an effort to overcome a lack of fingerling supplies in Cambodia, USAID-HARVEST developed a fish hatchery management program to create a consistent source of fingerlings. Six hatcheries have been identified to initiate this program. As Cambodia's aquaculture sector continues to grow, there will be ample opportunity for hatcheries to sell their fingerlings to fish farmers.
- **Aquaculture input supply guidebook.** Growth in Cambodia's aquaculture sector is limited by a lack of objective information about the input supply market. The USAID-HARVEST *Inland Fish Farmers'*

*Inputs and Services Suppliers Guide* will assist fish farmers to better evaluate input suppliers and prices when buying equipment. The guidebook, which will be distributed to all fishery clients and stakeholders, also serves as a technical manual on the uses and safety precautions for aquaculture equipment. The Cambodian Fisheries Administration has expressed interest in formally endorsing this guide.

- **Technical bulletin development and distribution.** USAID-HARVEST completed seven technical bulletins on farm-made feed, sampling, stocking, record-keeping, feed-conversion ratios, fertilizer, and fish species summaries. These bulletins are being distributed to all aquaculture clients and stakeholders to assist in increasing pond yields.
- **Attracted 1,000 participants at conservation field days.** Nine conservation field days were held at community fisheries in Pursat and Battambang, which attracted nearly 1,000 participants. These half-day events, co-hosted with community fishery Management Committees and members, focused on sustainable use of fishery resources, community fishing activities, and management of community refuge ponds.
- **Facilitated better management of community fisheries.** USAID-HARVEST supported two annual congresses at the Ang Community Fishery in Battambang and at the Boeung Dang Teuk Leak Community Fishery in Pursat. The congresses and triennial elections are a requirement of community fishery bylaws, but are rarely held due to financial constraints. They allow community members to speak directly with their management committees about issues concerning effective fishery management. USAID-HARVEST used the congresses and smaller meetings with management committees to hold the elections and discuss ways to effectively manage resources. Topics included development of fish sanctuaries and provision of basic monitoring equipment.



*Photo by Fintrac*

**Mr. Sim Samneang shows off his catch at a field day about carrying capacity held at his fish farm**

## 2.3 NATURAL RESOURCE MANAGEMENT, BIODIVERSITY AND CLIMATE CHANGE

USAID-HARVEST promotes community-based management of forests and protected areas. Activities at the village level include woodlots, tree nurseries, agroforestry, and income generation with non-timber forest products. The program also works to strengthen climate change mitigation through awareness-raising, education, and technical capacity building.

- **Field-based activities with Forestry Administration.** The program has approached the Forestry Administration (FA) to explore the possibility of working in the Central Cardamoms Protected Forest in the following areas:
  - **Natural resource management:** In Pursat and Battambang, the program has selected six new community forestry areas (managed by the FA) for field-based activities such as woodlots, tree nurseries, and agroforestry.



- **Protected areas:** The FA has shown interest in collaborating on protected area management in the Central Cardamoms Protected Forest. Activities will commence once the plan is accepted and approved internally by the FA.
- **Climate change mitigation:** The program and USAID/Cambodia originally proposed undertaking a number of mitigation activities with the Ministry of Environment. Of these, only one was approved – in a relatively small area outside of USAID-HARVEST’s coverage, and not suitable from a technical standpoint. Consequently, the FA was approached to consider undertaking this mitigation work in its zones, and was receptive to the suggestion and is currently evaluating the proposed activities.

■ **Discussed collaborative activities with the Ministry of Environment.** The Ministry of Environment and USAID-HARVEST are currently considering plans to:

1. Develop a national protected areas strategic plan, including a gap analysis.
2. Provide technical support to improve management of protected areas in Prek Toal Core Area of the Tonle Sap Biosphere Reserve.
3. Help develop policies and guidelines for establishing Community Protected Areas.
4. Provide trainings related to climate change and the UN’s Reducing Emissions from Deforestation and Forest Degradation in Developing Countries program.
5. Help update Cambodia’s National Biodiversity Strategic Action Plan.

■ **Launch of field activities.** To date, four wood lots, five tree nurseries, and two agroforestry areas have been launched in Pursat and Battambang provinces, which will benefit an estimated 3,571 households. These activities focus on the sustainable use of resources while providing income generating opportunities.

■ **Community forestry registration.** The program helped seven forestry partner clients apply with the Forestry Administration for formal recognition as community forestry areas. When officially registered, members receive a 15-year lease on their local forest area, thereby increasing local commitment and investment in proper natural resource management and reducing the likelihood of large-scale economic land concessions. Thus far, five of these groups have been officially designated as community forests, representing 819 households. In addition to aiding with the registration process, USAID-HARVEST helped clients with other essential activities, including elections for new management committees.



*Photo by Fintrac*

**USAID-HARVEST forestry manager conducts training on wood lots for representatives from NGOs, the Forestry Administration, and community members in Battambang.**

## 2.4 SOCIAL INCLUSION AND CAPACITY DEVELOPMENT

Social inclusion and capacity development activities cut across all program activities by promoting improved livelihoods and food security among marginalized groups. This is done through community awareness programs focused on health education and nutrition; the introduction of home gardens to spur income generation and healthier diets; and mitigation of the impact of climate change on vulnerable groups through farm-level adaptation techniques.

- **Strengthening the skills of women working in non-timber forest products.** The program began working with four women's groups in Pursat province to improve product development, market opportunities, and basic business practices for non-timber forest product enterprises. Seventeen women were chosen to visit Siem Reap's rattan processors and markets to further develop their groups' skills and introduce new products that can be crafted from rattan.
- **Building local partner capacity.** As part of USAID-HARVEST's efforts to improve the skills and knowledge of Cambodians working in local organizations, the program held trainings for nine local NGO partners. These trainings covered technical areas, such as low-input fish pond systems and production systems for rice, corn and vegetables, as well as management areas, such as internal financial controls and grants management. These trainings, which will continue over the duration of the program, support USAID's FORWARD initiative to improve local capacity.
- **Educating young Cambodian leaders.** Under the Long-Term Participant Training Program, the program selected 11 candidates to apply for a limited number of two-year scholarships for study at US and ASEAN universities, while an additional 17 individuals from government, university and research institutions attended short-term training courses in Vietnam, the Philippines, China, Nepal, and Indonesia. In addition, the program signed MOUs with the National Institute of Public Health, the Royal University of Phnom Penh, and the Royal University of Agriculture to provide funding for 28 master's degree scholarships in Nutrition, Biodiversity Conservation, and Natural Resources Management for the academic year 2012-2014.
- **Working with input supplier demonstration clients.** USAID-HARVEST registered nine new agriculture and fishery input suppliers as demonstration clients, bringing the total working with the program to 59. These input suppliers operate in eight different communes in Pursat and Battambang provinces. Most of these small businesses are operated by a husband and wife team, and often act as the primary source of information on agricultural practices for local farmers.
- **Training input suppliers on chemical use.** Improper use of chemicals is all too common in Cambodia, where many farmers are illiterate and many products contain instructions written in Thai and Vietnamese. This quarter, USAID-HARVEST trained personnel from 59 agricultural input supply businesses on the proper use of farm chemicals. The three-part course is helping suppliers provide



*Photo by Fintrac*

**A group of forestry clients weaves rattan mats in Pursat Province.**

customers with accurate and reliable information on the proper use of fertilizers and pesticides for rice and other crops. To date, 27 of these suppliers report strengthening their services to farmer clients.

- **Enhancing input supply stores.** Eight input suppliers began upgrading their shops by installing cabinets to display recommended farming products. This is designed to make the shops more attractive to customers, increasing input suppliers' incomes and improving the safe use and storage of farm chemicals. USAID-HARVEST will also provide all input suppliers with information display boards and dispenser racks for technical bulletins, which will help attract customers by offering advice on agriculture and aquaculture practices. In addition, four input suppliers created demonstration sites for customers on land adjacent to their shops to demonstrate the benefits of the rice drum seeders and proper fertilizer application.

- **Launching equipment rental program.** A new equipment rental program is providing 30 input suppliers with rice drum seeders available for rent by farmers. Select input suppliers have used the drum seeders thus far on a trial basis, and the simple, easy-to-use technology has the potential to transform rice production.



*Photo by Fintrac*

**A farmer pulls a drum seeder which can plant up to 16 rows simultaneously, reducing production costs and improving yields.**

- **Linking local suppliers with product distributors.** To expand the products and services available at the village level, the program linked 27 local vendors with three large agricultural equipment and input distributors operating at the provincial or national level. Input suppliers are already ordering new products from distributors to respond to demands of clients using USAID-HARVEST methods such as seedling trays, plastic mulch, trellis netting, and irrigation equipment. Distributors provided information to these businesses on the types of products they can supply, in addition to recommendations concerning government-approved agrochemical products available in Cambodia.
- **Launching family nutrition initiative.** In December, USAID-HARVEST launched a major nutrition initiative designed to improve the eating habits of rural families. Through a train the trainers model, USAID-HARVEST partner PATH is training NGO partners and program staff on the basics of family nutrition. The trainings focus on applicable and participatory modules that can be easily replicated with program clients.
- **Nutrition assessment.** USAID-HARVEST conducted a sample beneficiary survey to determine the dietary habits of its Food Security and Nutrition partner clients in Pursat and Battambang. The program also completed an assessment of the nutritional value of different crops that are commonly grown and eaten in Cambodia, and developed a table that ranks crops as sources of essential vitamins and minerals.



## 2.5 POLICY AND ENABLING ENVIRONMENT

USAID-HARVEST works with local partners to initiate change, enact policy reforms, and eliminate obstacles to development. The program's partners include government ministries, universities, NGOs, farmer and community groups, input suppliers, buyers, processors, and exporters.

■ **Expanding rice miller operations.** USAID-HARVEST continued its work to improve Cambodia's rice milling industry, which is underdeveloped and hampered by a lack of access to credit. The program is supporting the government's goal of domestically processing 50 percent of the country's paddy surplus and exporting an additional one million metric tonnes of milled rice by 2015. Rice miller support activities include:

- **Increasing access to credit.** In October and November, the program trained 12 rice millers on requirements for bank loan applications. Three have successfully obtained loans ranging from \$10,000 to \$25,000, which will allow them to increase their paddy stock in coming harvest seasons. In addition, four have applied for large-scale loans ranging from \$150,000 to \$350,000, and two more millers are in the process of preparing loan applications.
- **Training on improved standards.** Seventeen rice millers in Battambang received training in October on the need for improved standards and procedures for rice processing and selling. In addition, millers were educated on export market issues to enable them to negotiate better terms with buyers. Training topics included rice production and export policy, regional and world market opportunities for rice, business regulations and practices, distribution channels, contractual arrangements, packaging and labeling requirements, and trade financing.
- **Warehouse receipts study.** The program completed Part I of a feasibility study for a large-scale warehouse receipt system to serve the dual purpose of storing and processing paddy in the countryside, while also providing secured collateral for banks to extend loans to rice millers. The study, which engaged bankers, rice millers, donor agencies, and international collateral managers, found that it is feasible for Cambodia to set up a warehouse receipt system, although initial costs will require subsidies. USAID-HARVEST is constructing a financial model detailing the cost structure and potential benefits of the system.

■ **Providing credit terms and other information.** USAID-HARVEST installed billboards in 31 villages to display comparative information about different credit lenders, such as the terms and conditions of loans and other information currently being provided by five microfinance institutions. The boards are designed to help farmers make better informed decisions when applying for loans.

■ **Surveying local wholesale markets.** A market survey was conducted at wholesale markets in Pursat, Battambang, Banteay Mean Chey, Siem Reap, Kampong Thom, and Phnom Penh that covered 55 local and imported vegetables, 12 varieties of fruit, 25 varieties fish, and 11 types of grain. The resulting data and analyses gave a picture of the existing market demand, existing local and foreign supply, price fluctuations, and the potential to substitute imports with locally grown products.

■ **Rehabilitating irrigation canals.** Currently, the majority of rice produced in Cambodia is from rain-fed production systems, meaning most farmers are limited to one planting per year, rather than the two or three cycles per year seen in neighboring Vietnam and Thailand. USAID-HARVEST began

rehabilitation plans for two irrigation canals servicing an estimated 900 farmers. Rehabilitating these canals will enable the farmers to plant a supplementary rice crop or add a high-value crop to their yearly rotation, thereby increasing incomes. These two canals are the first of many planned rehabilitation projects.

■ **Identifying policy areas for reform.** USAID-HARVEST worked with the Cambodian government to identify six policy areas in which the program can contribute technical assistance:

1. A new law on the quality and safety of agricultural products
2. A policy and strategic plan to implement the sub-decree on contract farming
3. Finalization of the government's rice seed policy
4. New regulations on plant breeder rights
5. A strategic plan on protected area management
6. Production of foreign rice varieties in Cambodia

The consultations involved the Departments of Rice Crop and Agro-Industry of the Ministry of Agricultural, Forestry and Fisheries, and the Department of Biodiversity and International Conventions of the Ministry of Environment, as well as other senior government policymakers.



### 3. ACTIVITIES PLANNED FOR NEXT QUARTER

- In line with the program's rice value chain work, initiate field soil sampling with NGO Resource Development International (Cambodia) on the first 1,000 hectares of rice land.
- Install 1,100 irrigation systems for commercial and household garden sites.
- Begin rehabilitation work on two irrigation canals in Pursat and Battambang.
- Complete client selection for Siem Reap and Kampong Thom provinces.
- Select implementing NGO partners for mass training of household clients in nutrition education and related technical areas, i.e. agriculture, fisheries, and forestry.
- Establish women's producer groups at the village level to promote the production and marketing of vegetables, small-scale fish processing, floriculture, mushrooms, and non-timber forest products.
- Staff and operationalize zone warehouses for technology fund material and equipment.
- Develop training modules for the Ministry of Women's Affairs master trainers on gender and agriculture value-chain development and family nutrition.
- Conduct three socio-economic assessments in Pursat, Siem Reap, and Kampong Thom of potential irrigation programs for rice and high-value crop production for design and/or initiation this season.
- Train 20 microfinance institution staff on agricultural loan analysis and assessment.
- In preparation for stocking ponds for the rainy season, train six selected hatchery clients in brood stock management, spawning techniques, egg hatching, and small fish rearing.
- Select community refuge ponds and work with community fisheries to establish two fish sanctuaries.
- Conduct trials on fish cage culture methodologies.
- Produce the first training videos on low-input fish ponds.
- Reach final decision on mitigation activities for the Central Cardamom Protected Forest and protected area management support.
- Launch NRM and biodiversity activities implemented by subcontractor FFI in Pursat and Battambang.
- Design eight mobile kitchens for work in rural communities to present cooking demonstrations and teach villagers about basic family nutrition.
- Conduct a roundtable with rice millers, bankers, collateral managers, donors, investors, and policymakers on the feasibility of introducing warehouse receipt systems in Cambodia.
- Initiate four policy activities covering: 1) use of imported rice seed in Cambodia, 2) comment on the National Sub-decree on Seed Management and Plant Breeders Rights, 3) policy and action plan on contract farming, and 4) a strategic framework for a general seed policy.
- Send 17 people from the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Women's Affairs, several universities, and NGOs to upcoming courses on food safety in Indonesia (5 attendees) and gender mainstreaming in climate change adaptation and mitigation in Siem Reap (12 attendees).

# ANNEX I: YEAR TWO PERFORMANCE WORK PLAN

N°	Activity Description	Year 1 (Jan - Sep 2011)	Year 2 (Oct 2011 - Sep 2012)				Year 3 (Oct 2012 - Sep 2013)	Year 4 (Oct 2013 - Sep 2014)	Year 5 (Oct 2014 - Sep 2015)	Year 6* (Oct 2015 - Dec 2015) + 3 months	TOTAL YEAR 2	TOTAL EXPECTED LOP	Deliverables	Comments	Responsibilities	Progress Monitor		
			Q1 Oct-Dec	Q2 Jan-Mar	Q3 Apr-Jun	Q4 Jul-Sep										Status	To Date	Balance
1	<b>Agriculture (Crops) Program</b>																	
1.1	<b>Development and production of technical manuals and other training materials for agriculture (crops)</b>	0	27	10	10	9	10	9	updates		56	75	Technical manuals and other training materials produced			x	7	68
1.1.1	Rice		1	1	1	updates	updates	updates	updates		3	3	# produced		AG	x	0	3
1.1.2	Commercial horticulture		16	2	2	2	2	2	updates		22	26	# produced		AG	x	6	20
1.1.3	Home gardens		1	1	1	1	2	2	updates		4	8	# produced		AG, SI	=	1	7
1.1.4	Postharvest		3	3	3	3	3	3	updates		12	18	# produced		POST	x	0	18
1.1.5	Processing			2	2	2	2	1	updates		6	9	# produced		POST	=	0	9
1.1.6	Input suppliers		6	1	1	1	1	1	updates		9	11	# produced		AG, SI, BDS	x	0	11
1.2	<b>Identify and form farmer groups (lead clients and clients)</b>														AG, SI (others)			
1.2.1	Groups formed	400	157	111	330	120	538	457			718	2,113	Farmer groups		AG, SI (others)	+	437	1,676
1.2.1.1	Rice	195			214		225	131			214	765	Farmer groups		AG (others)	+	195	570
1.2.1.2	Commercial horticulture	74	25	25			68	81			50	273	Farmer groups		AG (others)	-	74	199
1.2.1.3	Home gardens	131	132	86	116	120	245	245			454	1,075	Farmer groups		AG, SI (others)	x	168	907
1.2.2	Group members incorporated in program (farmer clients)	634	1379	103	2374	720	3317	2711			4,576	11,238	Farmers/households	Including lead client + clients	AG, SI (others)	x	1,836	9,402
1.2.2.1	Rice	195			1678		1575	917			1,678	4,365	Farmers/households		AG (others)	+	270	4,095
1.2.2.2	Commercial horticulture	74	100	103			272	324			203	873	Farmers/households		AG (others)	+	175	698
1.2.2.3	Home gardens	365	1279		696	720	1470	1470			2,695	6,000	Farmers/households		AG, SI (others)	x	1,391	4,609
1.3	<b>Establish initial demonstration farms with farmer groups on lead client farms</b>	329	175	100	282	232	538	457			789	2,113	Demonstration farms established		AG (others)	+	662	1,451
1.3.1	Rice demonstration farms (certified seed, GAPs, etc.)	195			102	112	225	131			214	765	Demonstration farms established		AG (others)	+	212	553
1.3.2	Commercial horticulture demonstration farms for local markets	74	25	25			68	81			50	273	Demonstration farms established		AG (others)	x	84	189
1.3.3	Home garden demonstration farms	60	150	75	180	120	245	245			525	1,075	Demonstration farms established		AG (others)	+	366	709
1.4	<b>Demonstrate new technologies (Technology Fund procurement and distribution for client farms)</b>													Input suppliers in target zones will stock technology fund items for future purchases by farm client and other beneficiaries (sustained and wider impact)				
1.4.1	Macro plastic tunnels/houses (demonstrations)				10	10	20				20	40	Tunnels/houses constructed (600 m2 each)	For rainy season production of higher value vegetables; 10 demos per target province	AG, OPS (others)	=	0	40
1.4.2	Plastic mulch		45500	41250	5600	5650	114250	135250			98,000	347,500	Linear meters installed	Conserves soil moisture, controls weeds, repels insects	AG, OPS (others)	x	19,393	328,107
1.4.3	Manual and motorized sprayers		1460	550	772	678	1742	1798			3,460	7,000	Sprayers delivered	Includes hand (6,000), back-pack (800), and motorized (200)	AG, OPS (others)	x	64	6,936
1.4.4	Hand seeders		25	25	225		293	232			275	800	Seeders delivered	To optimize plant density; 600 drum & 200 hopper	AG, OPS (others)	x	0	800
1.4.5	Hybrid and improved seed (including seedlings)																	
1.4.5.1	Starter seed packets of 20 different recommended vegetable seed types for balanced nutrition for home garden clients (1 per home garden client)	113	150	1467	30	700	845	1470	1225		2,347	6,000	Seed packets distributed	Crop diversification, improved yields/incomes, higher household nutritional value, adaptation to climate change, and to stimulate new processing businesses	AG, OPS, SI (others)	+	1,116	4,884
1.4.5.2	Fruit tree seedlings (3 different varieties per home garden client)				5280	2100	2535	4410	3675		7,380	18,000	Seedlings distributed		AG, OPS, SI (others)	=	0	18,000
1.4.5.3	Improved rice varieties (9 kg per rice client)				15201		14346	8253			15,201	37,800	kgs of improved rice seed distributed		AG, OPS (others)	+	312	37,488
1.4.5.4	Improved horticulture seed for commercial growers (1/2 ha each)		26	100	78		68	285	243		204	800	Farmers received initial demonstration seed		AG, OPS (others)	+	91	709

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			Q1	Q2	Q3	Q4										Status	To Date	Balance
			Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep												
1.4.6	Trellising netting (for home garden & commercial clients)		110300	86000	20160	20340	241300	281900			236,800	760,000	Linear meters distributed	To maximize plant populations/unit area	AG, OPS, SI (others)	x	8,223	751,777
1.4.7	Demonstration site signs on lead client farms		546	111	341	120	538	457			1,118	2,113	Demonstration site signs installed	Promote HARVEST program and mark site for training	COM, OPS, AG (others)	x	133	1,980
1.4.8	Low-cost seedling nurseries																	
1.4.8.1	Seed trays (for commercial horticulture and home garden clients)		7550	3500	3360	3390	10750	11450			17,800	40,000	Seed trays distributed	Improved germination, improved plant health, increased yields	AG, OPS (others)	x	1,325	38,675
1.4.8.2	Clear plastic for home garden and commercial horticulture seed nurseries		1310	500	672	678	1606	1634			3,160	6,400	Farmers received clear plastic for low-cost seed nurseries		AG, OPS (others)	x	49	6,351
1.4.9	Fruit tree nurseries																	
1.4.9.1	Netting and black plastic seedling bags (HARVEST cost share for nursery establishment)			25	25		25	25			50	100	Fruit tree nurseries established in 100 communes (560 m2 each)	Improved household nutrition; new income source; micro-processing.	AG, OPS, SI (others)	=	0	100
1.4.9.2	Distribution by nurseries to households of fruit tree seedlings (average 3 per household)					5000	7000	7000	6000		5,000	25,000	Households received fruit trees from nurseries (in 200 villages)			=	0	25,000
1.4.10	Plastic harvest crates (for commercial farmers)		156	600	468		408	1710	1458		1,224	4,800	Crates distributed	Reduce postharvest losses; improved product quality	AG/POST (others)	x	0	4,800
1.4.11					450	2928	488	2962	1572		3,378	8,400	Bags distributed	Low-cost storage technology for dried rice to protect against insect, mold, humidity and rodent damage	AG/POST (others)	=	0	8,400
1.4.12	Farm chemical safety equipment															=		
1.4.12.1	Gloves		133	1631	103	2385	720	3317	2711		4,252	11,000	Pairs distributed	Part of overall farm chemical safety program using proven low-cost items.	AG, OPS (others)	x	0	11,000
1.4.12.2	Dust masks		532	6524	412	9540	2880	13268	10844		17,008	44,000	Distributed		AG, OPS (others)	x	0	44,000
1.4.12.3	Rubber boots		113	1631	103	696	720	1742	1795		2,543	6,800	Pairs distributed		AG, OPS (others)	x	0	6,800
1.4.13	On-Farm Irrigation																	
1.4.13.1	Low cost home garden drip irrigation systems	10	263	1467	30	700	845	1470	1215		2,460	6,000	Systems procured, distributed and installed	Each system will be comprised of a 300 liter barrel, a 4 hose manifold, filter, 4 lateral dripper lines (40 linear meters), and accessories	AG, OPS (others)	x	44	5,956
1.4.13.2	Commercial Drip irrigation systems		100	104			272	324			204	800	Systems procured, distributed and installed	Small-scale drip irrigation systems (0.5 ha) include pump, filter, piping and PE tubing, emitter lines and accessories	AG, OPS (others)	x	0	800
1.4.13.3	Capped tube wells		25	25	25	25	40	40	20		100	200	Tube wells installed	1 demonstration well per target village (200 total) with submersible pump	AG, OPS (ae)	x	0	200
1.4.14	Small-Scale Infrastructure Investments																	
1.4.14.1	Small-scale multipurpose collection centers					2	10	8			2	20			AG, OPS (ae)	=	0	20
1.4.14.2	Redesign and rehabilitation of existing canal irrigation systems			1	1		2				2	4	Irrigation canals rehabilitated	To include rehabilitation of canals (4 canals at an average of 2.5 kilometers each) and lift pumps.	AG, OPS (ae)	=	0	4
1.5	Extension visits to demonstration farms (by program agronomists and trained alliance partners)	3008	4092	6228	8928	11628	36000	36000	36000	4500	30,876	146,384	Extension visits to lead/demo farms by program agronomists and trained alliance partners	approximately 1 extension visit per lead client	AG (others)	x	5,378	141,006

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			Q1	Q2	Q3	Q4										Status	To Date	Balance
			Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep												
1.6	Group training on demonstration farms (by program agronomists and trained alliance partners)	3456	14294	15570	22320	29070	90000	90000	90000	11250	81,254	365,960	Participants in on-farm training events (training to include production, postharvest, business skills, marketing, other topics)	approximately 2.5 trainees per training event at demo farm	AG, POST, MKT, SI, BDS (others)	x	8,492	357,468
1.7	Participants in village-level community field days (by program agronomists and trained alliance partners)	292	5708	6000	12000	12000	48000	48000	48000	4000	35,708	184,000		2 per month per village x 40 participants at each	AG, POST, MKT, SI, BDS (others)	x	507	183,493
1.8	Farm chemical safety training (participants)	260	3136	3396	3396	3396	13584	13584	13584	664	13,324	55,000	Participants in FCS training	5 modular training per client over life of project	AG (input alliance partners, others)	x	388	54,612
1.9	Postharvest and Value-Added Activities																	
1.9.1	Training in improved postharvest handling techniques to farmers, transporters and buyers	221	1135	1356	1356	1356	5424	5424	5424	226	5,203	21,922	Trained in improved postharvest handling techniques	Estimated at least 2 trainings per client	POST, AG	x	800	21,122
1.9.2	Basic GMP, plant layout, equipment, supply to rice millers and other processors (not micro level)			1	2	2	5	5	5		5	20			POST, AG	=	0	20
2	Aquaculture & Fisheries Program																	
2.1	Development and production of technical manuals and other training materials for aquaculture and fisheries		8	3	3	2	updates	updates	updates	updates	16	16	Technical manuals and other training materials produced	Topics to include specifics on pond management (e.g., turbidity, species requirements, feed types), BMP Manual for Pond Aquaculture, BMP for Community Refuge Pond Management	FISH, AQUA (au, others)	x	7	9
2.2	Increase adoption of new/improved technologies within target communities (e.g. improved cages, O <sub>2</sub> meters, pH testing, etc.)		1	1	1	1	4	4	4		4	16	Individual new/improved technologies introduced to fisher folk in target communities	Procurement for demonstration sites through Technology Fund; on-going distribution through partner input suppliers	FISH, AQUA (au, others)	+	8	8
2.3	Aquaculture Program																	
2.3.1	Establish initial demonstration farms with farmer groups on lead client farms	9	36	45	45	45	140	140	140		171	600	Demonstration ponds established (lead clients)			+	51	549
2.3.1.1	Establishment of low- and medium input aquaculture demonstration ponds with lead clients (Low input in conjunction with home gardens)	9	36	40	40	40	125	125	125		156	540	Demonstration ponds established (lead clients)	Primary training location; will mostly share same demonstration sites as crops home gardens.	AQUA (au, others)	+	51	489
			90	80	80	80	250	250	250		330	1,080	Other low-input aquaculture clients	Recurrent training on lead client farms as informal group members		+	93	987
2.3.1.2	Establishment of high-value aquaculture demonstration ponds (freshwater prawns, eels, other)			5	5	5	15	15	15		15	60	Demonstration sites established with suitable lead clients	Primary training location	AQUA, (au, others)	=	0	60
				10	10	10	30	30	30		30	120	Other high-value aquaculture clients	Recurrent training on lead client farms as informal group members		=	0	120
2.3.2	Extension visits to demonstration aquaculture ponds (by program technicians and trained alliance partners)	44	316	720	1080	1440	10240	8960	8960	747	3,556	32,507	Extension visits to client farms	Average visits of once every 1.5 weeks per active lead client	AQUA, (au, others)	x	125	32,382
2.3.3	Group training on demonstration aquaculture ponds (by program technicians and trained alliance partners)	127	593	1440	2160	2880	20480	17920	17920	1494	7,073	65,014	Participants at demo site training events	Approximately 2 trainees per training event at demo site	AQUA, (au, others)	x	286	64,728
		9	297	720	1080	1440	10240	8960	8960	747	3,537	32,453	Demo site training events			x	22	32,431

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			Q1	Q2	Q3	Q4										Status	To Date	Balance
			Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep												
2.3.4	Participants in village-level community aquaculture field events		3000	3000	6000	6000	24000	24000	24000	2000	18,000	92,000	Community members attending aquaculture field day events	1 event/Village/month; with 40 attendees at each event (purpose to broaden interest in improved aquaculture and widen impact)	AQUA, (au, others)	x	170	91,830
			75	75	150	150	600	600	600	50	450	2,300	Field day training events			x	7	2,293
2.3.5	Technical Assistance to Fisheries Administration on defined priority initiatives (specific initiatives to be determined)		1				1	1			1		Initiatives initiated with Fisheries Administration; ongoing implementation	May include: request to provide training at Bati Research Station on freshwater prawn hatchery; request to assist FiA to develop snakehead pilot project proposal for Ministerial approval. Follow-up activities will be to assist with implementation.	AQUA, (au, others)	=	1	2
2.3.6	Development of "Cambodia Inland Fish farmers' Input Suppliers Guide" [to improve the accessibility of aquaculture inputs through identification of local producers (fingerlings) and importers (feed, equipment)]		1								1		Fish farmers Supply Guide produced (ongoing updates and dissemination)	Will significantly increase ability of fish farmers to compare and evaluate inputs for aquaculture management; current inability to know options is a major limiting issue in sector; see BDS Section in workplan for specific program activities with input suppliers	AQUA, (au, others)	=	1	-
2.4	<b>Fisheries Program</b>																	
2.4.1	Establishment of Demo sites with Community Fisheries (CFI) Partner Clients (Refuge Ponds, Cage Culture, etc.)			6	6		15	15	6		12	48	CFI demonstration sites established		FISH, (au, others)	+	3	45
2.4.1.1	Community Refuge Ponds			6			3	3	3		6	15	Community Refuge Ponds demonstration sites established		FISH, (au, others)	+	3	12
2.4.1.2	Cage culture demo sites with lead clients in floating villages on Tonle Sap				6		12	12	3		6	33	Cage culture demonstration sites with lead clients in floating villages on Tonle Sap established		FISH, (au, others)	=	0	33
2.4.2	Extension Visits to CFI lead clients/demonstration sites				54	54	432	432	360	30	108	1,362	Extension visits	3 times per month per demo in year 2; 2 times per month per demo years 3-6; estimated graduation after 1.5 years.	FISH, (au, others)	+	17	1,345
2.4.3	Participants in technical assistance and training events on sustainable fisheries (communities to receive effective community-based management training)	3032	1099	2000	2800	4600	10800	14400	20569		10,499	59,300	Participants in training and TA events	Conservation Field Training Events @ 1 per month for each CFI with 100 ppl at ea. event	FISH, (au, others)	=	4,021	55,279
2.4.3.1	Facilitate CFI Congress meetings at target CFI's				3		6	6			3	15	Congress Meetings	Congress Meetings are required annual events according to their by-laws but rarely held due to financial constraints. The project will facilitate these events to increase member interest/participation and work to improve management of CFI areas	FISH, (au, others)	+	2	13
2.4.3.2	Conduct Conservation Field Training Events w/ target CFI communities	31	9	9	9	9	61	72	72		36	272	Field Days to raise awareness on sustainable community fisheries	1 per month for each CFI with 100 ppl @ each event. Total of 12 CFI throughout project. Max 6 at any one time.	FISH, (au, others)	x	35	237
2.4.4	Fish Sanctuary and/or Refuge Pond watch towers			3			3	3			3	9	Sanctuary/Refuge Pond Watch Towers		FISH, (au, others)	=	0	9
3	<b>NRM, Environment and Climate Change</b>																	
3.1	<b>Global Climate Change</b>																	
3.1.1	Inventory of key natural resources													Initial focus on four target provinces				



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			Q1	Q2	Q3	Q4										Status	To Date	Balance
			Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep												
3.1.1.1	Design a spatial database (geo-located digital photographs, land use survey forms, forest and soil survey databases, etc.)	1									-	1	Report, GIS maps, database	Database provided as "HARVEST Atlas" under Phase I	aruna	Done	1	-
3.1.1.2	Add to and update database as more current or new data becomes available												Additions to "HARVEST Atlas"		IT, M&E, NRM, aruna	=	On going	N/A
3.1.1.3	Make database publicly available through Web-based ArcGIS server												Website established and maintained		NRM, Fintrac home office IT	=	0	-
3.1.2	Conduct a field-based carbon inventory for Phnom Samkos Wildlife Sanctuary (PSWS)					1					1	1	Forest Carbon Inventory Summary Report for PSWS	Will contribute to the MoE's strategy of piloting REDD+ activities in one or more of the protected areas it administers, and assist in calculating the total value of carbon stored within the forests of the site which have the potential to be sold on the voluntary carbon market.	ff/aruna	=	0	1
3.1.2.1	Supervised classification using object-oriented software, accuracy assessments and preparation of baselines maps and reports			1							1	1	Report and land cover baseline map	RapidEye 5m resolution multi-spectral data to be utilized	aruna	=	0	1
3.1.2.2	Visual Interpretation of Landsat at 1:50,000 scale Historical Mapping from 1990, 2000, and 2005			1							1	1	Report and maps	Analysis of changes in the areas over time. To provide the initial historical rate of deforestation and degradation required to estimate opportunity costs and to inform the analysis of the drivers of deforestation and degradation.	aruna	=	0	1
3.1.2.3	Local community consultation and training of local government within REDD+ Pilot site; training to community members in REDD-related forest inventory and monitoring techniques					10					10	10	REDD-related training to 10 communities in/around PSWS (200 participants)	Information about potential impacts, costs, benefits, risks opportunities are discussed and explained with communities for buy-in and support.	ff	=	0	10
3.1.2.4	Field-based forest carbon inventory					1					1	1	Field data collected and stored in database format	Sampling will include; specialized training for field team members, procurement of carbon field survey equipment, the establishment of data management systems and quality control processes, and data analyses of carbon stock estimates. Necessary to develop accurate REDD+ carbon estimations and verify information collected through remote sensing (i.e., satellite imagery).	ff	=	0	1
3.1.2.5	Conduct Opportunity Cost Analysis of competing land uses (socio-economic assessment) for PSWS					1					1	1	Opportunity Cost Analysis Report that evaluates the costs/benefits of different development scenarios to strengthen argument for conservation & protection	Includes: (1) REDD+ policy concepts reviewed and updated.(UNFCCC, VCS, CCB, National, etc.); (2) land uses identified and classified; (3) completed scenario analysis of alternative land use trajectories; (4) carbon stock for each land use estimated; (5) financial analysis of alternative land uses.	ff	=	0	1
3.1.3	Conduct Policy Review & Analysis of existing Cambodia REDD+ laws and policies			1							1	1	Review completed (report), including recommendations to amend/develop laws to prepare Cambodia's legal readiness for REDD+	There are no laws within the MoE Protected Areas system that will regulate the sale of community Carbon Credits. The work proposed here under the HARVEST program aims to help fill this vacuum by reviewing policy and legal frameworks within the MoE, which will lead to policy recommendations. Policies that reflect the involvement of local communities and indigenous groups at both the sub-national and national level will also be explored and encouraged. FFI in collaboration with environmental lawyers will analyze laws and policies related to community forestry and REDD+ as related to the MoE.	ff	=	0	1

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3.1.4	Local Capacity Development in GCC															=		
3.1.4.1	Development and delivery of GCC/REDD/PES courses at RUPP and GIS Courses at RUA														ffi/aruna	=		
3.1.4.2	Design curriculum and course materials					2					2	2	Curriculums developed for 2 Universities	Course at RUPP on GCC/REDD/PES to be integrated into MSc on Biodiversity Conservation. GIS Course part of Biology Curriculum at RUA.	ffi/aruna	=	0	2
3.1.4.3	Delivery of courses on GCC at RUPP and RUA						50	50	50	50	-	200	Participants in program-designed courses	Course held 1x/academic year. 25 Students at RUPP direct beneficiaries. 25 for RUA per year.	ffi	=	0	200
3.1.4.4	Development and delivery of 3-day officially recognized training courses on GCC/REDD/EPS for national government counterparts (in conjunction with RUPP)				50						50	50	MoE and FA staff trained in departments focused on Climate change/REDD,		ffi/aruna	=	0	50
3.1.4.5	Training through workshops for local government (commune and district, including PA staff) on climate change, mitigation (FFI/Fintrac/RUPP/Government)			100	100						200	200	Participants (estimated 4 events)		ffi	=	0	200
3.1.4.6	Local community consultation, education and awareness raising on climate change and REDD in PSWS (FFI/Fintrac)		50	100	100	100					350	350	Participants at 4 events/workshops		ffi	x	0	350
3.1.4.7	Training community members in forest inventory and monitoring techniques.		50								50	50	Community Members		ffi	x	0	50
3.1.4.8	Develop and deliver general public awareness and education campaigns on REDD in 4 target provinces				1	1					2	2	Local language materials produced and disseminated across 4 provinces. Education training in 4 provinces. In addition up to 200,000 people reached by radio spots (messaging)	Education & Information focused on commune populations and local government, radio spots for programmed awareness and related information.	ffi	=	0	2
3.1.4.9	Procurement and Installation of On-loan Image Processing and GIS Tools at MoE for project implementation and training		1								1	1	Key hardware and software installed at MoE	Essential equipment and software necessary for REDD carbon evaluation loaned to MoE for mitigation work	aruna	x	0	1
3.1.4.10	Certified Training of MoE Staff in GIS and Remote Sensing Software		5	5	5						15	15	MoE staff		aruna	x	0	15
3.1.5	Develop a National Protected Area Strategic Management Plan (with MoE)						1				-	1	Review of current PA System and development of 5-10 Year Strategy covering management options, investment and development strategies.	Strategic Mgmt Plan process includes a review of the current PA System and evaluates current condition and status of PAs. Following this review, numerous consultation stakeholder workshops/meetings will be held to develop a 5-10 year Strategy for all of Cambodia's PAs. This should significantly assist in improved mgmt for the PAs and identify remaining high priority areas and areas more amenable to ELCs.	NRM	=	0	1
3.2	<b>NRM/Biodiversity Conservation</b>																	
3.2.1	Establishment Demo sites with Community Forestry (CF)	4	20		24						44	48	CF demonstration sites established		ffi, NRM	=	24	48
3.2.2	Establishment of Lead Client Demo sites on NTFPs (bamboo, rattan, water hyacinth)			7	7	6	30	30	30		20	110	Demonstration sites identified and established	Communities identify high value NTFPs, village working groups implementing value chain corrective measure pilot projects for increased income, incorporating climate resilience.	ffi, NRM	+	18	92
				28	28	24	120	120	120		80	440	HHC participating in demonstration sites (lead clients, other clients, and new employment)			+	90	350

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3.2.3	Extension visits to NTFP Demo sites & Community Conservation Activities	19	60	180	288	387	882	1377	1755	291	915	5,239	Extension visits	Estimated 3 visits per month per site	ffi, NRM	x	60	5,179
3.2.4	Group training at demonstration sites (by program technicians and trained alliance partners)	368	216	540	864	1161	2646	4131	5265	873	2,781	16,064	Participants at training events	Average of 3 per extension visit	ffi, NRM	+	712	15,352
		14	72	180	288	387	882	1377	1755	291	927	5,246	Training events		ffi, NRM	x	37	5,209
3.2.5	Participants in village-level community field day events (community based management training)		1096	1440	1440	1440	5760	5760	5760	1440	5,416	24,136	Participants	1 Field Day per month per village with average of 40 participants at each	ffi, NRM	x	20	24,116
			27	36	36	36	144	144	144	36	135	603	Field day events		ffi, NRM	x	1	602
3.2.6	Establish & Implement Community Conservation Activities		8	5	5	5	25	25	12		23	85	Number of Community Conservation Activities established	Includes numerous community-based activities ( e.g., wood and tree nurseries, wood lots, agro-forestry areas, partner forestry pilot sites)	ffi, NRM	+	20	65
3.2.6.1	Tree nurseries		5	1	1	1	4	3	3		8	18	Tree nurseries	18 Sites, 160 Direct HH Beneficiaries	ffi, NRM	+	7	11
3.2.6.2	Wood lots		4	2	2	2	9	10	3		10	32	Lots/village	32 Lots/villages, 160 Direct HH Beneficiaries	ffi, NRM	+	9	23
3.2.6.3	Agro-forestry areas			2	2	2	10	10	6		6	32	Sites/villages	32 Sites/villages, 160 Direct Beneficiaries, 3200 Indirect	ffi, NRM	+	4	28
3.2.6.4	Partner forestry						1	2			-		3 Sites (in 3 provinces)	Partnership forestry offers an alternative legislative framework, working with commune councils directly and can be used for a range of activities - woodlots, bamboo, other NTFPs etc. There is only one pilot in Cambodia to date, but it is potentially an option at sites where CPAs and CFs cannot be capitalized on. Hectareage is tentatively projected at 500ha per PF, with an average of 200HH per village directly benefitting and 4 villages (est. 3200 HH) within the wider commune benefitting indirectly	ffi, NRM	=	0	3
3.2.7	Provide Technical Support to CPA & CF		1	1	1	1	4	4	2		4	14	CF/CPA communities completed registration process with MoE or FA.	Steps for CF/CPA's to be registered are standardized and approved by Govt Ministries. Steps include such activities as developing a Mgmt Plan, helping draft by-laws for CF/CPA Executive Committee, M&E of forest area, etc.	ffi, NRM	+	5	9
3.2.8	Implement Forest Restoration (dryland/flooded areas)						50	50	50		-	150	Ha of flooded forest reforested	Dry forest restoration tentatively suggested for sites in Beng Per Wildlife Sanctuary, and potentially other areas. Hectareage is conservatively estimated at 600Ha over project lifetime. Flooded forest restoration around Prek Toal community and aiming for 150 Ha given the restrictions on work in seasonally flooded areas. Tree planting in degraded forest areas in select forestry communities.	ffi, NRM	=	0	150
							150	150	150		-	450	Ha of dry forest reforested		ffi, NRM	=	0	450
3.2.9	Technical support to RGC on PA Mgmt			29529	29529	29529	88585	88585	88585		88,587	354,342	Ha in areas of biological significance under improved NRM	Initial focus on PSWS but possibly to include Beng Per WS and Prey Long forest on north side of Lake. Support to local communities and RGC rangers to carry out PA mgmt duties. Includes provision of equipment for PA mgmt, e.g., ranger stations, vehicles, patrolling equipment, etc. Hectareage and indirect H/H are calculated as combined areas and H/H of PSWS and Prek Toal respectively. This will increase pending additional PA selection on north side of lake. Potentially could include Beng Per WS or parts of Prey Long forest.	ffi, NRM	=	0	354,342
				1624	1624	1624	4872	4872	4872		4,872	19,488	Indirect HH Beneficiaries		ffi, NRM	=	0	19,488

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3.2.10	Establishment of District-level watershed management committees			1		1	2	2			2	6	Watershed mgmt committees established in 4 provinces (4 in Pursat/Battambang, and 2 in Kampong Thom)	Siem Reap province is more advanced already on this issue and has established committees which could be potentially supported by HARVEST. Ha and HH calculated as catchment areas of Stung Sangkae, Dauntri, Pursat and Baribo combined as well as Stung Chikreng and Staung in SR & KY and 20% of catchment population respectively	ffi, NRM	=	0	6
				218586	218586	218586	655756	655756	655757		655,758	2,623,027	Ha			=	0	2,623,027
				5268	5268	5268	15853	15853	15853		15,804	63,363	Indirect HH beneficiaries			=	0	63,363
3.2.11	Initiate public awareness campaigns on NRM/Conservation subjects				3	3	5	5			6	16	Campaigns	Subject 1: value and threats to inland fisheries and wildlife for food security	ffi, NRM	=	0	16
					239862	239862	479724	479725	479725		479,724	1,918,898	Ha			=	0	1,918,898
					7916	7916	15843	15844	15844		15,832	63,363	Indirect HH beneficiaries			=	0	63,363
					3	3	5	5			6	16	Campaigns	Subject 2: PA Law, Forestry Law, Wildlife Law, Land-use Guidelines;		=	0	16
					19614	19614	39228	39229	39229		39,228	156,914	Indirect HH beneficiaries			=	0	156,914
4	<b>Social Inclusion &amp; Nutrition Program</b>																	
4.1	Gender mainstreaming and social inclusion training to HARVEST & NGO partner alliance staff working under program-funded activities												Training provided to all program staff and partners (on on-going basis)		SI			
4.2	Ensure integration of extreme poor, women, and youth into program activities																	
4.2.1	Extreme poor clients as a percentage of total clients		10%	10%	10%	10%	10%	10%	10%	10%		10%	% of clients that are extreme poor	Individual clients may be in one or more of these groups. Percentage targets represent primary recipient of program technical assistance in household, not necessarily named heads of households.	SI, ALL (others)	x	6%	
4.2.2	Women clients as a percentage of total clients		40%	40%	40%	40%	40%	40%	40%	40%		40%	% of clients that are women			+	46%	
4.2.3	Youth clients as a percentage of total clients		30%	30%	30%	30%	30%	30%	30%	30%		30%	% of clients that are youth (based on RGC definition)			x	22%	
4.3	Design and implement specific programs that target poor HHs and women														SI (lead) with major input from ALL components (others)	=		
4.3.1	Small-scale fish processors				10	10	30	50	50		20	150	Individuals/MSMEs that received TA, training and mentoring to improve and/or expand a) product lines, b) market share, c) business management	This will be closely linked to other activities of SI (e.g., FS/N imitative), FISH and BDS	SI (lead), FISH, BDS (others)	=	0	150
4.3.2	Small-scale floriculture demos/models			1	1	1	7				3	10	Demos implemented		SI (lead), AG, BDS (others)	=	0	10
4.3.3	Women-owned NTFP micro-enterprises										-	-	Micro-enterprises assisted	See under NRM. SI provides key supporting role.	ffi, NRM, SI (others)			
4.3.4	Household gardens										-	-	Household garden activity supported	See under Agriculture Crops and Aquaculture. SI provides key supporting role.	AG, AQUA, SI (others)	=	0	-
4.3.5	Other activities (to be developed)			2		2	3	3			4	10	Activities developed and implemented	Food processing, fresh vegetable re-sales, deserts, mushrooms, etc.	SI, BDS, TBD	=		
4.3.5.1	Commercial womens group																	
4.4	Design and implement youth program activities										-	-			SI, ALL (others)	=		
4.4.1	Young farmer groups (fresh or processed agriculture crops, NTFP's, aquaculture raising, MSME development)			10	10	20	30	30				100	MSME groups established and activities implemented	Farming/aquaculture as a business.	SI, AG, AQUA, BDS	=	0	100
4.4.2	Vocational training and/or non-formal education centers			200	200	200	800	1,000	600		600	3,000	Youth trained in 3 activities	Community level training for internship programs in the areas of computer skills, field agriculture equipment and irrigation pumps.	SI, TRAIN, ALL	=	0	3,000

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4.4.3	Other activities (to be developed)												Other activities developed and implemented	Specific activities to be incorporated into the work plan in Q1.	SI, TBD	=		
4.5	Nutrition																	
4.5.1	Food security/nutrition initiatives for poor households (home gardens, low-input fish ponds, fruit trees, microprocessing)												Other components include activities directly impacting on food security and nutrition	Also see household gardens under agriculture crops and aquaculture. SI takes critical role in incorporating nutrition activities within program components.	SI, ALL (others)	=		
4.5.2	Family nutrition education delivered at household and community levels		800	800	800	800	5,600	5,600	5,600		3,200	20,000	Participants in nutrition education activities targeting household-level	Includes 2 cooking demonstrations/ village for 200 villages (50 participants/demo)	SI , ALL (others)	x	87	19,913
4.5.3	Food Security/Nutrition Community Initiatives (develop partnerships and/or design and deliver initiatives that community institutions and focus on increased knowledge and improved practices about food security and nutrition)		5	5	5	10	25	25	25		25	100	Communities and communes where HARVEST works with local institutions to strengthen food security/nutrition	Strengthening nutrition related concepts in schools, health centers, etc. coordinating with RAC and RACHA	SI (others)	x	0	100
4.5.3.1	School gardens		5	5	5	10	25	25	25		25	100	Schools will receive garden training	At least one school/commune teaching good nutrition and gardening through on site training at least 250 students/school or 25,000 students	SI (others)	x	0	100
4.5.3.2	Support to district health centers		2	2	2	3	8	2			9	19	District clinics assisted	At least one clinic/district training an average of 4 staff/clinic or				



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5	Capacity Building - BDS Providers																	
5.1	NGOs & CBO Alliance Partners (USAID FORWARD Initiative)													For intensive capacity building in support of USAID's FORWARD initiative				
5.1.1	Selection of NGO & CBO Alliance Partners to provide extension and other services to program's target communities (covering agriculture crops, aquaculture, fisheries, forestry/NRM)	10	9	7							16	26	CBOs and NGOs enter program (signed subcontracts and field activities commence)	Selection based on HARVEST staff review of NGO capabilities; competitive proposals	SI (with support from OPS and ALL)	x	10	16
5.1.2	Capacity Building of CBO/NGO Alliance Partners													Alliance				
5.1.2.1	Development of improved financial, accounting, procurement systems, including improved staff capabilities (and understanding of USG procurement regulations for future direct contracting with USAID)										-	-	Systems improved and staff trained		OPS	=	On going	N/A
5.1.2.2	Development of improved systems and staff capabilities in monitoring and evaluation										-	-	Systems improved and staff trained		M&E	=	On going	N/A
5.1.2.3	Technical training of NGO field-based staff (through mentor relationships with program technicians)										-	-	Field staff trained & skills improved	Covering extension/agronomy, farm chemical safety, nutrition, aquaculture, fisheries, silviculture/forestry, business skills, micro-processing/value-added, postharvest handling, social inclusion, NRM	ALL	=	On going	N/A
5.2	Input supplier enhancement and training programs	50	20	30	23	20	65	55	40		93	303	Input suppliers active in program and receiving technical assistance and training	Input suppliers receive BDS & tech. support to improve services and products available to local farmers, fishers, etc. Multi-activity programs to strengthen existing and new input supplier businesses; focus on ag (crops) and fisheries input suppliers.	BDS (lead) with support from AG, FISH, etc.	x	59	244
5.2.1	Technical skills training (agronomy, postharvest, chemical safety, etc.) to input supplier owners and staff	71	30	45	45	30	98	83	60		150	462	Input suppliers (including staff and family members) participated in training events	Agribusiness Input suppliers in the target communes and Fisheries input suppliers in target districts received technical trainings and TA.	AG, POST, FISH	=	98	364
5.2.2	Shop & inventory upgrades (expansion of products offered, particularly new technologies being promoted by the project)		25	25	25	25	153	50			100	303	Shops upgraded with new products and customer information boards	Agribusiness Input suppliers in the target communes and Fisheries input suppliers in target districts	AG, POST, FISH, BDS	x	8	295
5.2.3	New services offered (tractor rentals, seeding, seedlings, etc.)		3	5	5	8	25	30	40		21	116	Input stores offering new services to target clients	Agribusiness Input suppliers in the target communes and Fisheries input suppliers in target districts	AG, FISH, BDS	+	27	89
5.2.4	Expanded relationships with national and provincial input supply chains				2	2	10	10			4	24	Input suppliers entering into formal distributor relationships	Added new products to target input suppliers and improve relationship with large distributors	BDS, AG, FISH	+	4	20
5.2.5	Demonstration plots installed at input supply locations (with available land) to promote new technologies and products				15	15	25	25			30	80	Input stores with demo plots and input suppliers trained		AG, FISH (others)	+	4	76
				8	8	12					28	28	Technical bulletins made available to input suppliers			+	1	27
5.2.6	Distribution of technical information materials			200000	200000	200000	200000	200000			600,000	1,000,000	Copies distributed to input suppliers customers and stakeholders	Material includes the proper use of agrochemical, business management skills	COM, BDS	+	6300	993,700
5.2.7	Improved business skills and partnerships			2	5	5	15	20	22		12	69	Trainings (including study tours) and technical assistance on business skills and services	Project team and alliances	BDS	+	24	45

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5.3	NTFP micro enterprise BDS training			4	4	4	12	12	12		12	48	Micro enterprises trained	Micro enterprises engaged in sustainable harvesting, transformation and marketing of NTFP receiving BDS support to develop income generating activities.		=	0	48
5.4	Seedling nurseries				5	5	15	15	10		10	50	Seedling nursery businesses	New businesses (and jobs) created and/or new business lines established by existing input suppliers		=	0	50
6	Marketing & Market Analysis																	
6.1	Crop and product-specific market surveys		1	2	2	2	2	2	2		7	13	Crop and product specific market surveys produced and disseminated	Continued selection of target agricultural crops and products based on market analysis of local, regional and extra-regional markets	MKT	x	0	13
6.2	Other market surveys (wider level – village/market structure, market acceptance)	1	1	1			updates	updates	updates		2	3	Other market surveys conducted (with updates in later years)		MKT	=	2	1
6.3	Identify and establish formal and informal markets/buyers for program clients and others	60	119	120	120	120	480	480	480		479	1,979	Buyers and/or linkages identified	Includes contract farming arrangements with processors and other buyers	MKT	x	60	1,919
6.4	Evaluate and help implement simple market information reporting and dissemination methods (e.g. mobile phone MMS price and buyer opportunities)										-	-	Evaluation done in Q2/Q3; if feasible system(s) implemented with partners		MKT	=		
6.4.1	Evaluate potential systems and identify partners										-	-	Evaluation completed, system designed, partner(s) identified		MKT	=	0	-
6.4.2	Implement system(s) with partner(s)										-	-	System(s) implemented with partner(s)	Potential sponsor support for MMS from input supplier and financial institutions	MKT, BDS	=	0	-
6.5	Train counterparts, trade associations and government staff in market analysis methodologies for agriculture and other target crops/products					15	15				15	30	Counterpart staff trained in market analysis	Training includes each participant producing one crop/product-specific market survey	MKT	=	0	30
7	Finance & Financial Services																	
7.1	Develop Credit Information Sharing mechanism (CIS) so that farmers have access to various financial products available in the market (# villages)		31				30				61	61	Credit information system within target villages (billboards)	Numbers show billboard installation; maintenance of updated MFI information to be updated regularly	FIN	=	31	30
7.2	Train MFI lending staff in agricultural loan analysis and assessment	24		20		20	40	40	40		40	184	MFI and other financial institution lending staff training in agricultural loan analysis		FIN, AG, AQUA	=	24	160
7.3	Produce financial assessment tools and cash flows for all primary target products		2	2	2	2	updates	updates	updates		8	8	Assessments tools and cash flows produced (with ongoing updates)	For use by MFIs and other financial institutions to assess agriculture lending	FIN, POST, AG, AQUA	x	0	8
7.4	Assist rice millers, other medium- to large-scale agribusinesses in developing business plans, feasibility studies, and loan applications			4	4	4	16	16	16	2	12	62	Agribusinesses assisted with development of business plans, feasibility studies, and/or loan applications		POS, FIN, BDS, POST, AG, AQUA (emc)	+	12	50
7.5	Implement pilot small-scale warehouse receipts program for rice at community levels				2	2					4	4	Pilot (community-level) warehouse receipts programs for rice implemented	Will require community group organization and construction of small-scale storage infrastructure; demonstrations to assess feasibility for wider roll-out	FIN, POL, AG (STTA)	=	0	4
7.6	Assist community-based agribusinesses to increase working capital through loans from financial institutions, better credit terms with distributors, and other means			8	8	8	32	32	32	32	24	152	Input stores, rice millers and others accessing financing from banks, distributors, or other sources		FIN, BDS, AG	=	0	152
7.7	Development of input store credit products for farm customers (assist community-level input suppliers with improving or initiating credit facilities to farmers)			8	8	8	32	32	32	32	24	152	Stores offering input credit		FIN, BDS, AG	=	0	152

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7.8	Train farmers and other agribusinesses in record keeping and other business skills										-	-	Farmers and other agribusinesses trained in record keeping and other business skills	This activity is ongoing as needed	FIN, BDS, AG, AQUA, POST (others)	=	On going	N/A
8	Policy, Analytics, and Enabling Environment																	
8.1	Develop online pesticide registry with government counterpart (MAFF, Department of Agricultural Legislation)										-	-	Online pesticide registry established	Will provide transparency in status of approved farm chemicals; labels; translations in Khmer	POL, IT, AG			
8.1.1	Assess needs of MAFF and interest										-	-	Needs and interest assessed	Findings will determine whether activities 8.1.2-8.1.4 are continued	POL, AG	=	0	-
8.1.2	Design database structure (including web accessibility)										-	-	Database designed		IT, AG	=	0	-
8.1.3	Import data (including labeling and use instructions, with translations into Khmer)										-	-	Data imported		IT, POL, AG	=	0	-
8.1.4	Train local counterpart staff on updating (including Department of Customs and Excise)										-	-	Counterpart staff trained		POL, IT, AG	=	On going	N/A
8.2	Improve government capacity to review and register new agricultural chemicals										-	-	Counterpart staff trained; procedures/processes improved		POL, AG	=	On going	N/A
8.3	Develop and implement alliances with private sector and other partners			1		1	2	2	2		2	8	Alliances formed	Numbers show alliance agreement timing; implemented over LOP		=	0	8
8.4	Support to public sector counterparts for effective policies and regulations that improve efficiencies and enabling environment										-	-						
8.4.1	Assist MAFF in producing regulations on plant breeders rights				1						1	1	One regulation on plant breeders rights	Work with MAFF and national consultants; pending MAFF approval	POL, AG	=	On going	-
8.4.2	Assist MAFF in preparing technical procedures (code of practices) on quality rice seeds production				1						1	1	Technical procedure (code of conduct) on quality rice seeds production	Work with MAFF and national consultants; pending MAFF approval	POL, AG, STTA	=	On going	-
8.4.3	Assist government to produce practical regulations to implement the sub-decree on contract farming					1					1	1				=	On going	-
8.4.3.1	Assess initial implementation of contract farming										-	-	Assessment done		POL, AG	=	0	-
8.4.3.2	Assist government with draft regulations and mechanisms to implement the sub-decree					1					1	1	Assistance provided with regulations and mechanisms		POL, AG	=	0	1
8.4.4	Assist relevant government agencies to establish food safety regulations										-	-	Food safety regulations established		POL, AG, POST	=	On going	
8.4.5	Develop code of practice for grades and standards for rice for the RGC (in cooperation with other development partners and private sector)						1				-	1	Code of practice (grades and standards) development for rice		POL, AG	=	0	1
8.4.6	Assist MoE in preparing policies or regulations promoting sustainable NRM and conservation (includes laws, sub-decrees, and directives on biodiversity and conservation)										-	-	Policies and regulations as a result of program assistance		POL, NRM	=	On going	
8.4.7	Others initiatives (to be determined)						3	4	4		-	11	Other HARVEST-supported policy initiatives to improve enabling environment		POL	=	0	11
8.5	Analytic Cross-Cutting																	
8.5.1	Conduct a feasibility study and provide recommendations for larger-scale private warehouse receipts systems for rice		1								1	1	Evaluation to lead to specific activities that will be detailed in updated work plan		POL, FIN, AG, STTA (emc)	=	1	-
8.5.2	Social economic assessments of potential irrigation projects for certified rice and high value crops	4	3	3	2	2	4	2			10	20	Economic assessments of potential irrigation projects conducted		AG, POL	x	6	14
8.5.3	Production costs	2	3	3	3	3	6	6	6		12	32	Production cost surveys conducted	To be used to assess effectiveness of ag interventions (lower unit costs) and for use by financial institutions	POL, M&E, AG	=	5	27
8.5.4	Other project internal analytical work (to be determined based on needs)																	

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			Q1	Q2	Q3	Q4										Status	To Date	Balance
			Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep												
8.5.5	Analytical work on national level in conjunction with local research organizations (e.g. CDRI, EIC, etc.)										-	-	Other analytical work completed as identified and required	Utilizing network of donors working on agricultural policy and enabling environment for collaboration	POL	=	TBD	
9	Limited Participant Training Program																	
9.1	Development of local participant training programs with local universities (including potential field internships with program technicians)					20	20	20	20		20	80	Participants in programs developed with local universities (including field internships with program technicians)	Activities to be incorporated based on MOUs with local universities. Activities will likely include curriculum/program development, teacher capacity development, materials support, visiting experts, paid field internships)	TRAIN, ALL	=	0	80
9.2	Identification and development of shorter-term certificate based programs in critical technical needs areas (local, regional and US)	3	5	5	5	5	20	20	20		20	83	Placements in shorter-term programs (local, regional and US)	Includes all related activities (identification of programs, selection of participants, placement, logistics, support, follow-up)	TRAIN (ie), ALL	+	18	65
9.3	Identification and development of longer-term (e.g. MSc) programs in critical technical needs areas (US)					4	4				4	8	Placements in longer-term programs at US institutions	Includes all related activities (identification of programs, selection of participants, placement, logistics, support, follow-up)	TRAIN (ie), ALL	=	0	8
9.4	Identification and development of longer-term (e.g. MSc) programs in critical technical needs areas (regional)					8	8				8	16	Placements in longer-term programs at regional institutions	Includes all related activities (identification of programs, selection of participants, placement, logistics, support, follow-up)	TRAIN (ie), ALL	=	0	16
9.5	Identification and development of longer-term Cambodian-based programs (e.g. MScs) in critical technical needs areas (e.g. nutrition, biodiversity)					20	20				20	40	Placements in longer-term programs at local institutions	Includes all related activities (identification of programs, selection of participants, placement, logistics, support, follow-up)	TRAIN, ALL	=	0	40
10	Monitoring & Evaluation																	
10.1	Performance Monitoring Plan																	
10.1.1	Indicators reviewed on regular basis to meet future USAID/W/FTF and USAID/Cambodia guidance and needs										-	-	New indicators added as required based on changing USAID requirements	USAID/W monitoring and evaluation guidance, including final indicators, are still being developed and finalized.	M&E	=	On going	N/A
10.1.2	PIRS finalized for any new indicators and/or adjusted for changes in USAID indicator definitions										-	-	PIRS added or amended as required		M&E	=	On going	N/A
10.1.3	PMP indicator targets reviewed based on results; adjusted as required with USAID approval		1				1	1	1		1	4	PMP indicator targets reviewed on annual basis	PMP indicator targets should be reviewed at least on an annual basis to determine whether adjustments may be required (either upwards or downwards based on changed circumstances). USAID approval required for any changes.	M&E	=	1	3
10.2	Workplan Performance Monitoring																	
10.2.1	Workplan Performance Monitoring Plan developed for each annual workplan (to capture activity deliverables targets, including sources, timing, verification, and methodologies)		1				1	1	1		1	4	Workplan Performance Monitoring Plans developed		M&E	=	1	3
10.2.2	Collection and compilation of data for activity deliverable targets; monthly reports to program management (including quarterly and annual comprehensive reports)	1	3	3	3	3	12	12	12	3	12	52	Monthly reports on workplan progress (including more comprehensive quarterly and annual reports)		M&E	=	4	48
10.3	CIRIS M&E System Management																	
10.3.1	Customization of CIRIS M&E system for HARVEST indicators (PMP and workplan)										-	-	CIRIS customized as required	Includes support to global Fintrac M&E in designing new indicators, methodologies, and reports for new FTF indicators (e.g. unique trainees, tracking at low-level administrative units, new household gender definitions, etc.)	M&E, IT	=	On going	N/A
10.3.2	Ongoing data collection by project staff for performance monitoring										-	-	All project staff enter data on on-going (daily) basis into CIRIS	M&E responsible for validation, collection of specific workplan and PMP indicators	ALL, M&E	=	On going	N/A

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			Q1	Q2	Q3	Q4										Status	To Date	Balance
			Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep												
10.3.3	Design of customized CIRIS reports for program management and field technicians										-	-	New customized reports designed as required based on management and field technician staff needs		M&E, IT	=	On going	N/A
10.3.4	CIRIS data import tools for alliance partner NGOs										-	-	Tools developed in Y1 Q1, ongoing customization as required		M&E, IT	=	On going	N/A
10.3.5	CIRIS data validation (identification of outliers, missing data, and field-based validation)										-	-	CIRIS data validated on regular basis	Schedule/checklist of monthly validation tasks developed and adhered to.	M&E	=	On going	N/A
<b>10.4</b>	<b>Alliance Partner M&amp;E Reporting Systems</b>																	
10.4.1	All partner alliances include individual M&E plans (tied to HARVEST higher level indicators, as well as workplan deliverable targets)										-	-	M&E plans developed with each partner as alliance initiated with program		M&E	=	On going	N/A
10.4.2	Partner alliance staff training in program M&E methodology										-	-	Partner M&E staff trained to meet subcontract M&E requirements		M&E	=	On going	N/A
10.4.3	Data collection and validation from program alliance partners (for inclusion in CIRIS and other databases)										-	-	Data collected and validated from program partners, imported into CIRIS and/or other databases as required		M&E	=	On going	N/A
<b>10.5</b>	<b>Baseline Survey and Impact Evaluations</b>																	
10.5.1	Baseline Survey																	
10.5.1.1	Subcontractor selected and subcontract signed for baseline survey		1								1	1	Subcontractor selected and subcontract signed (October)	Local subcontractor to be utilized to increase local capacity and for better local knowledge.	M&E, STTA	x	0	1
10.5.1.2	Baseline methodology finalized with baseline survey subcontractor and specialized STTA (including: sample size and method of calculation; matching criteria for treatment/control groups; identification of treatment/control sites to participate in the survey)		1								1	1	Methodology finalized for baseline survey (October)	Subject to USAID approval. Needs to take into account new and changing USAID guidance on FTF baseline data collection. STTA Specialist (Gary Woller) to be used on recurrent intermittent basis to supplement local subcontractor.	survey subcontractor, STTA, M&E	x	0	1
10.5.1.3	Finalization of survey instruments (including field testing)										-	-	Survey instruments designed, tested and finalized (early November)	Survey forms designed (see latest FTF guidance); field tested with small household sample; finalization based on field testing results.	baseline survey subcontractor, STTA, M&E	=	0	-
10.5.1.4	Identification of survey respondents										-	-	Survey respondents identified (early November)		baseline survey subcontractor, STTA, M&E	=	0	-
10.5.1.5	Baseline survey field data collection										-	-	Field data collection for baseline survey data (Nov-Jan)	Includes recruitment, training and supervision of field data collectors.	baseline survey subcontractor	=	0	-
10.5.1.6	Prepare SPSS shell and enter data (with adequate quality control measures and cleaning data of all errors)										-	-	SPSS shell created (Nov); data entered (Nov-Jan)		baseline survey subcontractor	=	0	-
10.5.1.7	Final baseline survey report (with data)			1							1	1	Final report with data submitted to USAID (Feb)		baseline survey subcontractor, STTA	=	0	1
10.5.2	Mid-Term and Final Evaluations						1			1	-	2	Mid-term and final evaluations completed following baseline survey methodology		baseline survey subcontractor, STTA	=	0	2
10.5.3	Annual interim surveys conducted to gauge primary HARVEST PMP indicators' progress					1	1	1	1		1	4	Interim surveys conducted	Less rigorous methodology and sampling than baseline and mid/final evaluation. To gauge interim progress and primary high-level PMP indicators' targets.	survey subcontractor, STTA, M&E	=	0	4



N°	Activity Description	Year 1 (Jan - Sep 2011)	Year 2 (Oct 2011 - Sep 2012)				Year 3 (Oct 2012 - Sep 2013)	Year 4 (Oct 2013 - Sep 2014)	Year 5 (Oct 2014 - Sep 2015)	Year 6* (Oct 2015 - Dec 2015) + 3 months	TOTAL YEAR 2	TOTAL EXPECTED LOP	Deliverables	Comments	Responsibilities	Progress Monitor			
			Q1	Q2	Q3	Q4													
			Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep										Status	To Date	Balance	
<b>10.6</b>	<b>Other Special M&amp;E Surveys</b>																		
10.6.1	Input supplier sales		baseline			1	1	1	1		1	4	Surveys conducted	To gauge increased sales by input suppliers in program target communities; to gauge increased use of improved technologies and rate of adoption	M&E, BDS	x	0	4	
10.6.2	Client productivity surveys										-	-	Surveys conducted	To gauge productivity increases for selected target products (including estimating productivity increases and decreases in unit costs of production by applying different technologies)	M&E, AG, AQUA	=	On going	N/A	
10.6.3	Other special surveys (to be determined)										-	-	Surveys conducted	Other special surveys to be determined based on component, management, and USAID needs	M&E	=	TBD		
<b>10.7</b>	<b>Other Reporting</b>																		
10.7.1	Quarterly/annual report preparation	3	1	1	1	1	4	4	4	2	4	21		Support to preparation of quarterly and annual reports, including update of workplan and PMP status, as well as other inputs as required.	COM, M&E, ALL	=	4	17	
10.7.2	Success story production	1	7	4	4	4	16	16	16	4	19	72	Success stories produced and distributed		COM, M&E, ALL	=	8	64	
10.7.3	Monthly Project Bulletins	5	3	3	3	3	12	12	12	2	12	55	Monthly bulletins produced and disseminated		COM, M&E, ALL	=	8	47	

Status Key	
done	Completed
+	Ahead of Schedule
=	On Schedule
X	Behind Schedule

<b>Key to Abbreviation in Responsibilities Column</b>	
<b>Program Departments/Units</b>	
AG	Ag Production/Crops
AQUA	Aquaculture
FISH	Fisheries
NRM	NRM/Forestry
SI	Social Inclusion/Nutrition
POST	Postharvest/Processing
MKT	Marketing
POL	Policy & Analysis
BDS	BDS
FIN	Finance
IT	Information Technology
TRAIN	Participant Training
M&E	M&E
OPS	Operations/Funds Management
COM	Communications
ALL	All program units/components
<b>Subcontractors/Partners</b>	
au	Auburn University
aruna	Aruna Technology
ffi	Fauna & Flora International
ae	Advancing Engineering
emc	Emerging Markets Consulting
iie	Institute for International Education
others	Other subcontractors/partners (TBD)

## ANNEX II: CLIENT INFORMATION

**Table 1a: USAID-HARVEST Battambang Target Villages --Clients, Sector Focus, and Target HHs/Populations (as of December 31, 2011)**

Location			# Clients- Ag	# Clients - Fish	# Clients - Fsty	#CFi	#CF	Sector Focus			Target Populations				
Province	District	Village						Ag	Fish	Fsty	# HHs	Population	%HH P1	%HH P2	%HH P1&P2
Battambang	Aek Phnum	Bak Amraek	31	6				■	■		281	1,223	27%	46%	73%
		Doung Mea	15		Joint Rohal Suong village			■	■		163	555	15%	25%	39%
		Rohal Suong	16	5		1		■	■		289	623	16%	20%	36%
		Sdei	16	6	Joint Rohal Suong village			■	■		260	1,122	12%	15%	27%
	Bavel	Ballang Leu	49	4				■	■		249	1,236	13%	18%	31%
		Ballang Mean Chey	40					■			107	535	15%	15%	30%
		Prey Sangha	77	5				■	■		426	2,198	11%	23%	34%
		Svay Sa	34	6				■	■		160	796	14%	23%	37%
	Banan	Banan					1			■	367	1,632	11%	19%	30%
		Rumchey					1			■	356	910	9%	20%	29%
	Thma Koul	Chrey Thmei	4					■			207	674	19%	21%	40%
		Kbal Khmaoch	26	1				■	■		289	1,191	29%	29%	59%
		Svay Chrum	15					■			342	1,282	14%	17%	30%
		Ou Ta Ki	34	2				■	■		803	3,359	40%	3%	43%
		Ballang Kraom	40	3				■	■		427	1,917	16%	12%	27%
		Prakeab	59	2				■	■		582	2,839	13%	7%	20%
		Rung Chrey	49	10				■	■		258	1,429	16%	6%	22%
		Tuol	28	2				■	■		150	770	21%	11%	32%
		Paoy Rumchek	1					■			94	465	19%	26%</	

Table 1b: USAID-HARVEST Pursat Target Villages --Clients, Sector Focus, and Target HHs/Populations (as of December 31, 2011)

Location			# Clients- Ag	# Clients - Fish	# Clients - Fsty	#CFi	#CF	Sector Focus			Target Populations				
Province	District	Village						Ag	Fish	Fsty	# HHs	Population	%HH P1	%HH P2	%HH P1&P2
Pursat	Bakan	Bak Meaek	41	3				■	■		210	915	19%	11%	30%
		Khnar Totueng	29	2				■	■		193	828	23%	4%	28%
		Krouch Saeuch	40					■			93	402	25%	4%	29%
		Phteah Sla	50	3				■	■		152	675	24%	5%	30%
		Tuol Angkrong		2					■		50	209	8%	6%	14%
		Daeum Roka	27					■			94	378	7%	20%	28%
		Kampong Kdei	44	3				■	■		102	438	30%	26%	56%
		Pralay Rumdeng	56	4				■	■		112	536	6%	14%	21%
		Prasat	37	5				■	■		222	995	14%	16%	30%
		Rumlech	26	3				■	■		194	863	16%	12%	28%
		Rung Ta Kok	26					■			220	-	14%	15%	28%
		Thnuoh Ta Chab	15					■			283	1,339	7%	13%	21%
		Bakan	36	3				■	■		255	1,182	13%	11%	24%
		Chamkar Ou	25	8				■	■		135	610	28%	11%	40%
		Kab Kralanh	7					■			123	538	15%	17%	32%
		Ou Rumchek	38	4				■	■		255	1,243	7%	12%	19%
		Stueng Kambot	20					■			204	-	10%	12%	23%
		Poulyum	13					■			195	-	8%	12%	21%
	Krakor	Krang Thum	27	3	52		1	■	■	■	141	676	9%	17%	26%
		Ou ach Kok	20	3	2		1	■							

Location			#Clients- Ag	#Clients- Fish	#Clients- Fsty	#CFI	#CF	Sector Focus			Target Populations				
Province	District	Village						Ag	Fish	Fsty	# HHs	Population	%HH P1	%HH P2	%HH P1&P2
Siem Reap	Chi Kraeng	Damrei Chhlang	23					■			254	1195	20%	30%	50%
		Ou	30					■			166	-	45%	50%	95%
	Soutr Nikom	Chan Sar Cheung			74		1			■	51	247	6%	18%	24%
		Chob			8		1			■	58	-	40%	29%	69%
		Bos			1	Joint Chob village				■	232	1199	13%	19%	33%
		Rumdeng			4	Joint Chob village				■	131	655	27%	16%	43%
		Samraong			5	Joint Chob village				■	225	1161	26%	18%	44%
		Sambat			9	Joint Chob village				■	145	795	28%	17%	45%
		Damrei Chhlang				Joint Chob village				■	75	-	37%	0%	37%
		Chhuk				Joint Chob village				■	99	557	11%	12%	23%
		Stueng	24					■			255	1036	25%	10%	35%
		Svay Chrum	30					■			207	414	23%	29%	52%
	Banteay Srei	Skun			11		1			■	158	1065	17%	13%	30%
	Svay Leu	Anlong Thum			21		1								



## ANNEX III: SNAPSHOTS



**USAID**  
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**CAMBODIA**

### SNAPSHOT Putting Idle Land to Good Use

#### Farmer shares success with his community



Photo: Fintrac  
Lead clients like Thav Sar are increasing their incomes by growing hybrid corn during the rainy season.

#### **“After listening to this presentation, I am thinking about growing corn myself.”**

*Local rice farmer Keart Sam, 67*

*Growing corn allows Cambodian farmers to utilize land that customarily sits unused during the rainy season. USAID-HARVEST is teaching them new techniques, resulting in higher yields and increased incomes.*

#### **Telling Our Story**

U.S. Agency for International Development  
Washington, DC 20523-1000  
<http://stories.usaid.gov>

Down a rutted dirt road deep in the Cambodian countryside, a crowd of 60 people gathered under a large tent. Local pop music blared from nearby speakers, and residents of tiny Bakan village in rural Pursat Province chatted and soaked up the festive atmosphere. But when Thav Sar, a respected farmer in the area, took a microphone and began to speak, audience members quieted down and leaned forward intently.

Thav, 45, was talking about his experience growing corn, and his neighbors were there to learn as much as possible. They had gathered for a USAID-HARVEST corn field day, a public event that allowed neighboring farmers to discuss the benefits of growing this under-utilized crop during the rainy season.

Corn is a promising option for Cambodian farmers. Aside from rice, farmers here do not customarily plant crops during the rainy season, leaving land idle and resulting in lost potential income. However, with proper land preparation to prevent flooding, and the use of improved seed varieties, farmers have learned how corn can flourish before the heavy monsoon rains fall.

Thav is one of 72 USAID-HARVEST corn lead clients who are receiving technical assistance from dedicated project agronomists. In exchange for receiving training, these lead clients agree to pass on their newfound knowledge to their peers.

This year, Thav stands to profit \$200 from planting a half hectare of corn, a substantial sum for a small-scale farmer. He grew corn in past years without much success, but since becoming a lead client, he has increased his yields by 50 percent. “Before, I relied on techniques passed down from family members. Not all of the stalks produced corn. But with these new techniques, all of them do,” he told the crowd. “I recommend that you try it.”

At the end of the event, Thav led a tour of his recently harvested corn field. Audience members saw firsthand how he had applied USAID-HARVEST’s techniques, including better spacing between seeds and more effective use of fertilizer.

Local rice farmer Keart Sam, 67, said the event was informative and worthwhile. “After listening to this presentation, I am thinking about growing corn myself,” he said. Other villagers expressed similar sentiments, evidence that Thav is having an impact.



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**CAMBODIA**

## SNAPSHOT

# Fish Farmers Net Greater Yields

### Systematic Approach Results in Larger Fish



Photo: Fintrac Inc.

Im Pirun extracts samples from his pond at least once per month, per USAID-HARVEST guidelines.

**“I’m very proud to see how much the fish have grown this year.”**

Im Pirun, fish farmer

*USAID-HARVEST is helping aquaculture clients approach their work more systematically. With project methods, farmers are spending less on inputs and growing bigger fish, resulting in higher profits at the market.*

#### Telling Our Story

U.S. Agency for International Development  
Washington, DC 20523-1000  
<http://stories.usaid.gov>

Im Pirun has been a fish farmer for six years. Until recently, he didn’t think much about the fundamentals of his job, such as how many fish to stock and when and how much to feed them.

“Before, I just guessed. I probably wasted a lot of money on food and fingerlings,” he said. He also relied on the advice of input suppliers, who have a financial interest in selling products – not necessarily providing unbiased technical guidance.

That all changed this summer when Im, 40, became a lead client with USAID-HARVEST. With help from project aquaculture specialists, he has become much more methodical in his approach. As a result, he is saving money on inputs and growing larger fish. At two months old, his fish this year weigh an average of 200 grams – double what they’ve weighed at this stage in the past, which Im expects will allow him to more than double his profit.

Im is one of 12 USAID-HARVEST aquaculture lead clients. Under this arrangement, the project works closely with lead clients to teach them new techniques and introduce simple, cost-effective technologies. These lead clients, in turn, share their newfound knowledge with other fish farmers to help them increase their incomes.

Change starts at the beginning, when the ponds are empty. Project specialists advise farmers on how to determine the optimum amount of fish to raise. Stock the pond with too many, and the fish won’t grow large enough; stock too few, and yields will be low. USAID-HARVEST methods help them find their sweet spot.

As the growing season progresses, USAID-HARVEST gives them the tools to consistently and effectively monitor their fish. At least once per month, Im wades into his ponds with a net and extracts a sample. He then weighs these fish and uses a feed table to determine how much food the pond should be receiving. He also monitors the pH and oxygen levels in the water, making adjustments as necessary.





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**CAMBODIA**

## SNAPSHOT Improving Nutrition with Home Gardens

### Cambodian Families Eating Better, Feeling Healthier



Photo: Fintrac Inc.

Home garden demonstration client Rat Bunthoeun has seen her yields increase substantially.

**“I wake up every morning excited to grow and sell vegetables.”**

Rat Bunthoeun

*USAID-HARVEST is introducing better home gardening techniques to tackle malnutrition and food insecurity. Families are improving their diets and selling excess crops on the market.*

#### Telling Our Story

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When USAID-HARVEST approached Rat Bunthoeun about applying new methods and technology in her home garden, she was initially skeptical.

“It looked like a lot of work to install all of the equipment. I was worried that it wouldn’t work,” said the 43-year-old mother of two from Mareah Prov village in Battambang Province.

Three months after becoming a USAID-HARVEST demonstration client, Rat is a firm believer. She has more than quadrupled the yields of her long bean plants, which sell for approximately 2,000 riel (\$.50) per kilogram, going from growing 0.5 kilogram per linear meter to 2.3 kilograms per linear meter. With these higher yields, she is making more money at the market than ever before.

Rat is one of 131 USAID-HARVEST home garden demonstration clients. As part of the program’s food security and nutrition initiative, rural and vulnerable households are introduced to highly nutritious vegetables, such as kale, morning glory and yellow sweet potato, and are shown new methods for growing produce on residential plots. This allows them to improve their diets and increase their incomes through the sale of excess produce.

With simple, affordable technology, villagers like Rat are making a difference not just at home, but also in their communities. As a demonstration client, she works directly with neighbor families, most of whom are poor, to demonstrate how to use plastic mulch, fencing, trellises, seedling trays, and other inexpensive, cost-effective tools.

Better home gardens are helping rural families tackle malnutrition and food insecurity, which are significant problems in Cambodia. Rat’s success in her garden is having a direct impact on the health of her family. With the increased yields, they are currently able to eat more food – and, crucially, more nutrients – than before. Additionally, Rat now has surplus produce to sell, which enables her to purchase more food and essential items for her family.

Although she was once a doubter, Rat is



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## SNAPSHOT

# Students Learn Value of Flooded Forests

### Conservation days teach important lessons about natural resources



Photo: Fintrac Inc.

Games and role-playing engage children in conservation-related discussions

**“I now know how important it is for us to take care of the flooded forest.”**

Roeun Peou, student

*USAID-HARVEST is promoting better resource management through Conservation Days at Cambodian schools.*

#### Telling Our Story

U.S. Agency for International Development  
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On a cool, sunny morning in rural Cambodia, 113 children gathered in a large circle. They were students at Ang Primary School in Battambang, and they were eager to participate in Conservation Day, one of a number of USAID-HARVEST events that promote better resource management. In fact, the children were so eager that the event had to be moved outdoors to the school's courtyard to accommodate the larger-than-expected turnout.

Sox Than, 56, welcomed the students. As the head of nearby Ang Community Fishery, he had plenty to say about the day's theme: Saving Cambodia's Flooded Forests. “It is very important for you, the young people, to help save our fishery resources,” Sox said. He instructed the children to tell their parents or the authorities if they saw abuses occurring in the flooded forests. They then divided into groups and answered quiz-style questions about fish and their habitats.

Fish form the vast majority of the protein consumed in the Cambodian diet, particularly among the rural poor. The disappearance of flooded forests would have serious consequences for the country, both in terms of the environment and food security.

Flooded forests – wooded areas that are seasonally under water – are a unique feature of Cambodia's landscape and are vital to the survival of the country's fish population. They act as sanctuaries for many species, allowing them to feed and spawn in a safe place far from predators. The degradation of the Cambodian flooded forests reduces biodiversity, which negatively affects food and livelihood security. In response, USAID-HARVEST's Conservation Days are helping to raise awareness about the issue among those who stand to be most affected by it.

At the end of the day's activities, the students were invited to share lessons learned. Roeun Peou, 13, said the event had been eye opening. “I now know how important it is for us to take care of the flooded forest,” she said. Educating children – the future keepers of the flooded forests – is one way that USAID-HARVEST is ensuring the program will have lasting, sustainable impact on natural resource management for generations to come.

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## SNAPSHOT

# Drum Seeder Transforms Rice Planting

**Drum seeders are helping farmers reduce production costs and improve yields**



Photo: Fintrac Inc.

A farmer pulls a drum seeder, which can plant up to 16 rows simultaneously.

**“After seeing the results, my customers are now interested.”**

Tan Ngork, farmer and input supplier

*USAID-HARVEST is introducing the drum seeder through input suppliers. The cost-effective product cuts down on input costs and ensures farmers get the most out of their fertilizer.*

### Telling Our Story

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Farmers in Cambodia have been planting rice the same way for generations: tossing handfuls of seed into a field until it is covered. But the method is inexact and can lead to problems, such as clumping, bare spots and over-planting. Transplanting, a time-consuming and labor-intensive alternative, is not ideal for most small-scale farmers.

To address this problem, USAID-HARVEST is introducing a modest piece of technology that could transform the way Cambodians sow their fields. The drum seeder allows farmers to plant crops in evenly spaced rows, ensuring that they get the most out of their fertilizer and avoid wasting seeds. Farmers or farmer groups can either purchase this unit, which costs between \$30 and \$50 depending on the length, or rent it for \$5 per planted hectare.

The design is simple and easy for farmers to use. A series of plastic drums containing seed is linked horizontally and bookended by wheels. The farmer stands in a harness and pulls the unit behind him, dispensing seed up to 16 rows at a time.

USAID-HARVEST is spreading the word about the drum seeder through agricultural input suppliers. These small businesses have hundreds of customers in nearby villages. When customers come in to the shop to buy fertilizer or pesticide, input suppliers can explain the benefits of using a drum seeder, and give interested farmers the option to buy or lease one from their shop.

One such input supplier is Tan Ngork from Pursat Province. He adopted the technology eagerly, but had a difficult time convincing his customers to do the same. “People laughed at me. They said it would never work,” Tan said. Undeterred, he came up with an ingenious way to demonstrate the effectiveness of the product. Working in adjacent plots, he used the drum seeder in one field but not the other. Several months later, the results were evident for everyone to see: healthy, well-spaced stalks in one field and irregularly spaced stalks with a much lower seeded plant population in the other. “After seeing







## ANNEX IV: SELECTING TARGET AREAS

## ANNEX V: FINANCIAL SUMMARY

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